
Technical Memorandum

Methods for Improving Local Markets for Recycled Materials, Regulating Service Providers, and Establishing Mechanisms for Regional Cooperation

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DRAFT

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Introduction

In July 2009, the Austin City Council directed City staff to conduct a public outreach process to obtain community input on the scope of services for an *Integrated Solid Waste Management Master Plan*. During July and August 2009, City staff conducted public input meetings and made presentations to City boards and committees to obtain input on the scope of services. Among the specific areas of program research identified by the public, this Technical Memorandum addresses:

- **Market Development for Reclaimed and Recycled Materials** - To conduct research on methods to encourage and promote markets for reclaimed and recycled materials and to identify local manufacturers capable of using recycled materials in their products, the project team profiled ten local companies on their ability to use reclaimed and recycled materials.
- **Market Development in Construction Projects** - To evaluate and recommend methods to promote the use of reclaimed and recycled materials in construction and identify reclaimed materials appropriate for use in construction. The project team surveyed City staff from the Public Works Department and three local construction contractors to identify the feasibility of using reclaimed and recycled materials in construction.
- **Producer “Take Back” Programs** – To identify material types appropriate for take back, the project team documented voluntary take-back programs in other communities and surveyed ten local retailers on the feasibility of accepting materials for take back.
- **Mechanisms for Regulating Private Service Providers and Generators** – The project team conducted research to determine: (1) what regulatory authority the City has to control waste; (2) how much authority the City can assert over generators of waste; and (3) what options are available to impress upon waste generators to encourage them to assist in creating/contributing to market development.
- **Mechanisms for Regional Cooperation** – The project team summarized approaches to regional cooperation, including the formation of a regional solid waste management district or joint power authority; formalizing and expanding the Capital Area Council of Governments (CAPCOG) role in solid waste planning; and the development of inter-agency or interlocal agreements between neighboring communities.

This memorandum provides an overview of the issues, as well as a summary of the results of the research. The findings from the memorandum will be presented to the public at a workshop to be held in August 2010. Based on input from that workshop and any additional research conducted, the recommendations will be included in the *Integrated Solid Waste Management Master Plan* to be published in spring 2011.

Market Development for Reclaimed and Recycled Materials

Markets are a necessary component for any zero waste system. Intermediate and end markets provide the vehicle for beneficial use of diverted materials by returning them to manufacturing and production of new products. There are essentially three types of potential buyers for recovered materials:

- **Processors** - Processors purchase recyclable materials, process them to end-user specifications, and transport them to market. These firms include waste paper packers, paper stock dealers, scrap metal dealers, and intermediate processors that handle a wide variety of recyclables.
- **Brokers** - Brokers purchase materials directly from a number of suppliers and resell them to an end-use manufacturer without any processing. Brokers provide transportation arrangements to deliver the materials to market, and can provide advantages to the end-user because they can ensure a reliable supply of materials, usually at steadier prices.
- **End-use manufacturers** - End-use manufacturers (such as paper mills, steel and aluminum smelters, glass, or plastic manufacturing plants) use the recyclable material as an alternative or supplemental feedstock to virgin materials in the manufacturing process to create new products that will be sold to consumers.

Methods to Develop Markets for Reclaimed and Recycled Materials

Traditional commodity recyclables, including paper, plastic and metals are worldwide commodity resources that are traded internationally.

Because of their special handling requirements, materials such as organics, reusables, and construction and demolition debris are typically marketed locally or regionally.

For materials that do not have sufficient markets or infrastructure, government intervention can help create markets by ensuring a guaranteed flow of materials; reducing contamination of collected materials; and buying products made from recovered materials. Governments can also encourage market development by providing grants and low interest loans to processors and end-use manufacturers; entering into long-term contracts to develop new infrastructure; relaxing building codes and zoning laws, streamlining local permit processes, reducing taxes and licenses; banning recyclable or compostable materials from landfilling; and adoption of policies such as C&D Ordinances and Extended Producer Responsibility (EPR).

Our surveys of local collection service providers and processors found that the region has a vibrant market for recovered materials, including all of those material types included in the City's current programs. There is also a high level of interest among private haulers and non-profits to develop processing capacity for the City. To ensure adequate markets for recovered materials, the City should:

- Reduce the contamination rate of collected materials through outreach, education and enforcement.

- Phase in the collection of new materials in the recycling program, including rigid plastics, scrap metals and textiles and enter into long-term agreements with processors to pay for the development of new facility processing capacity.
- Phase in the collection of new materials in the yard trimmings program, including food scraps and compostable paper and enter into long-term agreements with processors to pay for the development of new facility processing capacity.
- Phase in diversion requirements for commercial and multi-family generators to include all of the same material types included in the residential recycling and composting program.
- Phase in diversion requirements for construction and demolition activities, ensuring that all loads are processed for recycling.
- Support disposal bans of recyclable and compostable materials.

Local Manufacturer Profiles

The project team conducted research to identify local manufacturers that can use and increase the use of reclaimed materials. However, many local companies that were contacted, including Ben E. Keith, Temple-Inland, and United Parcel Service do not manufacture materials locally and cannot accept materials for recycling. Appendix A includes the completed surveys for the local manufacturers. Summaries of these surveys are included below.

ACCO Waste Paper of Austin

ACCO, an Allied/Republic waste services company, provides collection, recycling and disposal services to residential, commercial, and industrial customers in the United States. ACCO was contacted to understand the traditional commodity markets in Austin. The company operates three facilities in the Austin area. The Austin material recovery facilities accept materials where metal, glass, plastic and paper are sorted, processed and shipped to manufacturers for further recycling or reuse. One Austin area destination of some of their materials is Cycled Plastics. Currently, ACCO receives 2,000 tons per month at its north Austin facility, and can increase to 6,000 tons per month.

Coca-Cola Bottling Company

Coca-Cola is ceasing bottling operations in the Austin area and will only be maintaining a warehouse in Austin. However, the company is investing in more recycled content for its bottles and will be a purchaser of recycled PET in the San Antonio area. Coca-Cola's goal is to source 25 percent of its PET plastic from recycled material by 2015.

Cycled Plastics

Cycled Plastics is a local manufacturer specializing in the recycling of foam packaging plastics such as expanded polystyrene, polypropylene, polyethylene, and polyurethane foams. Cycled Plastics shreds, grinds, washes and re-pelletizes scrap back into a clean, consistent raw material supply. Cycled Plastic recycles post-industrial plastics including, high density polyethylene, polycarbonate, and engineering grade plastics. The company maintains a public drop-point at its facility in Austin which accepts plastic bottles that have been rinsed with caps removed, flower pots that have been lightly washed to remove most of the dirt, and plastic bags that have had no food contact and have

no paper contamination (labels, stickers). Cycled Plastics stated that it could double its current processing capacity in Austin. Cycled Plastics currently processes up to two million pounds of materials per month at its Austin facility. Potential growth in Austin would depend on the type of materials available for processing.

Dell Computers

Dell will recycle a Dell™ branded system at any time at no charge, and will recycle any brand of computer for free with the purchase of a new Dell computer. Through its Dell Exchange program, Dell will accept PC and Apple desktops and laptops, servers, computer monitors, SLR and point and shoot digital cameras, camcorders, multi-media projectors, home and car audio receivers, game systems, mobile phones, PDAs or hand held computers, Apple iPods, GPS navigation devices, video games, and external hard drives. Dell and its partners appear prepared to increase the capacity of their recycling programs without limits. Dell helped to support the development of new policies for take back of electronic waste nationally.

Fuquay, Inc.

Fuquay, Inc. is a local company providing: construction site preparation, environmental compliance installations, infrastructure rehabilitation, underground utility construction, and road and concrete construction. Fuquay, Inc. manufactures and installs its own brand of erosion control materials, including American Fiber™ Hydro-mulch. Fuquay, Inc. currently is purchasing approximately 120,000 lbs. per month of clean newsprint to produce its hydro-mulch American Fiber from Balcones Resources. The company reports that it has the potential for expansion from the 2010 projected level of 144,000 lbs. of hydro-mulch.

Image MicroSystems

Image MicroSystems processes 1,000 computers per day at its Austin facility. The company evaluates all computers and peripherals that arrive at the Austin facility for potential reuse or recycling. Components not feasible for reuse are disassembled. The company reuses the plastics to make pavers at its Austin facilities. Image MicroSystems also manufactures plastic “substrates” on which signs are painted. Image MicroSystems has the capacity to expand its operations. It is currently operating one shift at present, but can operate up to three shifts.

JOSCO Products

In 1980, JOSCO Products began selling products, including polishing rags, to the fiberglass reinforced products and cultured marble industry. JOSCO found there was a market for wiping rags in other industries, so it expanded the line of wiping rags produced from discarded clothing and other textiles. The source of discarded clothing and other textiles are hotels, thrift stores, hospitals, and linen supply companies. JOSCO sells approximately 150,000 pounds of wiping rags per month and has the capacity to increase production.

Old Texas Floors

Old Texas Floors sells reclaimed pine flooring, paneling and beams for restaurants, bars, offices and homes. The company buys salvaged wood and has it re-milled for customers. The company is growing, and plans on expanding into a larger warehouse. The company is aware of an ample supply

of locally available materials that could be re-milled for reuse. Old Texas Floors anticipates moving to larger facilities within one year.

Vintage Material Supply Co.

Vintage Material Supply Co. reclaims and sells vintage timber and lumber, primarily old-growth longleaf pine, sinker pine, sinker cypress, and native Texas timbers. The company manufactures custom wood flooring materials, staircases, and custom furniture. It has the capacity to increase production of materials from reclaimed wood (including from demolition, deconstruction and trees that must be cut down).

Summary

Whiles Austin has an active manufacturing base, most commodity recyclable materials are transported outside of the region for recycling and remanufacture. The City is part of a worldwide market for reclaimed materials and only a limited number of remanufacturers are located in the Austin region. There are some specialty recyclers, including those that produce hydro-mulch and polishing rags. If the City needed to develop markets locally, it would have to dedicate financial resources (e.g., grants, loans) or commit tons of these materials to the remanufacturer to ensure a steady supply.

Market Development in Construction Projects

Methods to Promote the Use of Recycled Materials in Construction

Use of certain reclaimed and recycled materials in new construction, including recycled concrete rip rap, recycled asphalt, and reground concrete is very common. Some potential reusable items, such as recycled glass asphalt, recycled rubberized asphalt and recycled tires are considered more experimental and are not commonly used locally. Some items, such as used concrete storm drain pipe cannot be re-used because they do not meet the required specifications. All contractors have stated that they are open to using recycled materials provided they meet the required specifications and are no more expensive than other options. The following table provides a list of potential recycled materials and whether they are in use by the local contractors, City of Austin Public Works and the Texas Department of Transportation.

Material	Public Works	Jamail & Smith	Laughlin-Thyssen	Texas Department of Transportation
Recycled concrete rip rap	✓	✓	✓	✓
Recycled flexible base	✓	✓	✓	✓
Recycled asphalt rip rap	✓	✓	✓	✓
Recycled rubberized asphalt	✓			✓
Recycled tire products				✓
Recycled glass asphalt				
Recycled glass products		✓		
Recycled asphalt shingles		✓		✓
Recycled steel	✓	✓	✓	✓
Recycled lumber		✓	✓	
Recycled building facades and	✓	✓		

Material	Public Works	Jamail & Smith	Laughlin-Thyssen	Texas Department of Transportation
details				
Recycled trees and untreated lumber (mulch)	✓	✓		✓
Recycled sewage sludge (Dillo Dirt™)	✓	✓	✓	✓
Recycled concrete storm drain pipe				
Reground concrete	✓		✓	✓
Clean fill dirt	✓	✓	✓	✓
Reused architectural features, doors, windows, etc.	✓	✓		

The following table lists other recycled and reclaimed materials specified as used by the contractor.

Public Works	Jamail & Smith	Laughlin-Thyssen	Texas Department of Transportation
Recycled street bricks	Flooring (carpet, tile, rubberized flooring)		Molded rubber/plastic lumber
Chip seal rock sweepings	Ceiling tiles		Tire rings and molded rubber for the base rings on traffic control barrels
Modular partitions	Doors		Rubber delineator posts, plastic reflectors and plastic sign substrate
	Cabinets		Plastic fabric mow strips
	Stained concrete		Concrete with rubber chips is being tested
	Finger jointed lumber		Sand blasting sand, industrial/hydrocarbon impacted soil (certified as non-toxic), and electronic filter cake
	Specialty items (handrails, toilet paper dispensers, fixtures, grab bars)		Railroad ties made of rubber/plastic

Construction Contractor Profiles

The project team surveyed City staff from the Public Works Department, the Texas Department of Transportation and two local contractors to identify the feasibility of using reclaimed and recycled materials in construction. Appendix B includes the completed surveys for the construction contractors. Summaries of these surveys are included below.

City of Austin Public Works

The City of Austin Public Works Department manages design-bid-build projects involving the construction (by private contractors) of roadways, water lines, sewer lines, storm drain lines, pump stations, treatment plants, and buildings. Public Works manages the City's Capital Improvement Program projects through all phases of design, construction, and inspection. City projects use concrete, steel, asphalt, aggregate, asphalt emulsion, lumber, and other construction materials for streets, utilities, and buildings. If a building cost exceeds \$2 million, then LEED (Leadership in Energy and Environmental Design) certification is required. The LEED certification requires the use of recycled materials. The City has used the following types of recycled materials in construction projects: recycled concrete riprap; recycled flexible base; recycled asphalt; recycled rubberized asphalt (friction course, chip seal, crack sealer); recycled steel; recycled building facades and details; recycled trees and untreated lumber (mulch); recycled sewage sludge (Dillo Dirt™); reground concrete (road base, select fill); reused architectural features, doors, windows, etc.; clean fill dirt; recycled street bricks, chip seal rock sweepings (stockpiled, washed, and reused); and modular partitions. The City is considering experimenting with glass road base materials and recycled asphalt shingles.

Jamail & Smith Construction

Jamail & Smith Construction specializes in job order contracting, new building construction, design-build, and construction management at risk job order contracting. The company's projects use concrete, steel, wood, asphalt, stone, brick, drywall, plastic, copper, roofing materials, finishes, paints, carpets, ceiling tiles, lighting, HVAC (heating, ventilation and air conditioning), plumbing, sprinklers, and electrical components. The company has used the following types of recycled materials in construction projects: recycled concrete riprap; recycled flexible base; recycled asphalt rip rap; recycled glass products (road base, reflective paint, glass/sand mix for ice prevention); recycled asphalt shingles; recycled steel; recycled lumber; recycled building facades and details; recycled trees and untreated lumber (mulch); recycled sewage sludge (Dillo Dirt™); clean fill dirt; reused architectural features, doors, windows, etc.; flooring (carpet, tile, rubberized flooring), ceiling tiles, doors, cabinets, stained concrete, finger jointed lumber, and specialty items (handrails, toilet paper dispensers, fixtures, grab bars). They would be willing to use recycled products if they are able to meet the performance and specifications of the non-recycled products. If there was a financial incentive, they would be interested in expanding their recycling efforts. As long as they could make money or have no additional costs, they would be willing to recycle or use recycled products. The only limitations to what they can generate are, the cost effectiveness compared to landfill costs and the availability of recyclable materials from specific projects.

Laughlin-Thyssen, Inc.

Laughlin-Thyssen, Inc. is a Civil General Contractor specializing in a broad range of infrastructure projects. The company has successfully completed projects involving large complex concrete structures, large diameter steel and concrete piping, tunneling, mechanical, electrical for both power and instrumentation, and buildings associated with these projects. The feedstock that they currently use in construction includes sand, gravel, bedding material, asphalt, base material, pipe, steel,

concrete, lumber, and machinery supplies. The company has used the following types of recycled materials in construction projects: recycled concrete; recycled flexible base; recycled asphalt; recycled steel; recycled lumber; recycled sewage sludge (Dillo Dirt™); reground concrete (road base, select fill); and clean fill dirt. Their Houston operations use a lot of reground concrete. There are several suppliers of reground concrete in Houston that provide the product at prices competitive to conventional materials. There is only a limited availability of this product in the Austin market. Good quality control and specifications are the only restrictions they would place on recycled materials if the owner or engineer wanted to use them.

Texas Department of Transportation

The Texas Department of Transportation (TxDOT)'s workforce of more than 12,000 employees is made up of engineers, administrators, designers, architects, sign makers, accountants, purchasers, maintenance workers, travel counselors and many other professions. TxDOT, in cooperation with local and regional officials, is responsible for planning, designing, building, operating and maintaining the state's transportation system. The feedstock that they currently use in construction include concrete, asphalt, flex base, aggregate, steel, fiber-mulch, and compost, plus products containing recycled rubber, plastic, and paper. TxDOT has used the following types of recycled materials in construction projects: recycled flexible base; recycled asphalt; recycled rubberized asphalt (friction course, chip seal, crack sealer); recycled tires (lightweight fill, molded rubber products, landscaping & erosion control); recycled asphalt shingles; recycled steel; recycled trees and untreated lumber (mulch); recycled sewage sludge (Dillo Dirt™); reground concrete; and clean fill dirt. They also use the following additional recycled materials:

- Molded rubber/plastic lumber on their equipment trailers costs more than lumber, but has better performance and lasts longer than lumber.
- Tire rings and molded rubber for the base rings on traffic control barrels.
- Rubber delineator posts, plastic reflectors, and plastic sign substrate are used for signing and object marking.
- Plastic fabric mow strips are being tested on an experimental basis to replace concrete mow strips.
- Concrete with rubber chips has been proposed for use on an experimental basis for non-structural concrete such as sidewalks and slope paving. The rubberized concrete is weaker, but more flexible.
- TxDOT is open to using sand blasting sand, industrial/hydrocarbon impacted soil (certified as non-toxic), and electronic filter cake for aggregate and fill material.
- Railroad ties made of rubber/plastic are being considered to replace timber and concrete railroad ties by TxDOT and the railroad industry.

They do not have any expansion plans for transportation projects. They are studying and experimenting with several recycled products. They will consider any recycled materials that perform well and are cost effective.

Summary

There is active interest and support of using reclaimed and recycled materials in construction projects. TxDOT, in particular, has significant experience with reclaimed and recycled materials. State level specifications provide a model for local jurisdictions to expand their use of reclaimed and recycled materials. The City of Austin and the local contractors also have experience using reclaimed and recycled materials and would continue to use these materials if they met the specifications and did not cost more than the traditional products. If the City wants to encourage the use of more reclaimed and recycled materials in construction projects, the City may wish to review the TxDOT specifications for reclaimed and recycled materials and if appropriate incorporate them into their own specifications for new construction.

Methods to Develop Markets for Compostable Materials

Currently, the City composts yard trimmings collected from residents and brush collected by City crews with wastewater biosolids from the Hornsby Bend wastewater treatment facility. The material is composted in windrows on site at the wastewater treatment plant and sold to residents and contractors as a fertilizer or soil amendment, marketed as Dillo Dirt™. Dillo Dirt™ is successfully marketed for retail sales at home centers and hardware stores.

The Hornsby Bend facility currently uses about 13 acres of a 14 acre existing concrete pad for aerobically co-composting, screening and finishing processes to produce Dillo Dirt™. They also have an additional 3 acre pad that can be used in the summer season if necessary. The existing co-composting portion of the Hornsby Bend facility is currently running a little under capacity for ground yard trimmings and brush at this time. However, Hornsby Bend understanding the need for growth and expansion and is in the process of constructing a new 15 acre concrete pad on-site to double their co-composting capacity.

In addition, several private sector companies are initiating compost operations and have approached the City and the Austin Integrated School District to encourage composting of food scraps. The private sector service providers include:

- Clever Compost;
- Ecology Action – Rhizome Collective;
- Microbial Earth;
- Organics By Gosh;
- Compost IT;
- Restaurant Recyclers; and
- TDS.

Market Development –Yard Trimmings

Opportunities for development of markets for yard trimmings must include the following:

1. **Reduce Contamination.** Increase outreach efforts to educate City residents about acceptable and unacceptable materials for the yard trimmings program. This effort will lead to a reduction in contamination, improved handling of the material during processing, a better compost product, improved marketability, and lower production cost.
2. **Enhanced Organics Marketing Plan.** To enhance its marketing efforts, the City can undertake a written organics marketing plan that provides a detailed strategy for managing the increased volumes of organics to be diverted. The City can continue investigating how to access agricultural and horticultural markets for compost and mulch.
3. **Adopt Compost Use Specifications.** The City can adopt or adapt existing TxDOT specifications for using compost and mulch in all City and/or City-contracted public works projects (such as erosion control and stormwater management).
4. **Compost Use in New Development.** The City can also consider adopting a compost use requirement for any new residential or commercial development or re-development.

Market Development – Food Scraps with Yard Trimmings

The recommended market development required to accommodate the addition of residential food scraps to residential yard trimmings collection are similar as those listed above for overall yard trimmings market development, with the following additions:

1. If the addition of food scraps co-collected with yard trimmings is implemented citywide, the City must undertake a comprehensive outreach and education program to encourage residents to reduce contamination and increase participation. This will result in a cleaner feedstock material for processing and a better final product for the markets.
2. The City should support efforts at the State level to allow all composting facilities to accept food scraps for composting. This will increase the options for City-collected organics.

Food Scraps

The addition of food scraps to yard trimmings-only composting facilities is seen by some as improving the quality of the final compost product. Adding food scraps may also reduce the amount of water required during the composting process.

This improved compost quality by the introduction of food scraps as feedstock has been documented by two of the largest composters of food scraps in the U.S.: Jepson Prairie Organics (a division of Recology, formerly Norcal Waste Systems, Vacaville, California) and Community Recycling and Resource Recovery (Lamont, California). Community Recycling has been successfully using their compost product on a variety of agricultural crops in the San Joaquin Valley including: cotton, citrus, strawberries, almonds, and alfalfa.

Some food scraps (predominantly commercial, industrial, or institutional) may be collected separately in great enough quantities to be used for anaerobic digestion. In some cases, the food scraps may be co-digested using existing digester capacity at wastewater treatment plants; or it may be digested by stand-alone digesters. It is unclear whether or not the “residue” from anaerobic digestion (often called “digestate”) will need to be composted or will be able to be directly applied to

agricultural land or otherwise beneficially reused. The end use of material that has been anaerobically digested will depend on the quality of the material (source separated or commingled) and the specific type of digester (high solids versus low, mesophilic versus thermophilic, etc.).

Market Development – Food Scraps

The required market development strategies for food scraps are similar to the recommendations for yard trimmings discussed above with the following additions:

1. The City can advocate for additional markets for food scraps by supporting the development of anaerobic digestion capacity.
2. The City can also study the potential development of a pre-processing facility at its wastewater treatment plants to handle food waste.

The following chart describes the different organic feedstocks, processing techniques and end uses.

Feedstock	How Processed	End Use
Yard Trimmings	Chipped and/or ground; composted	Colored Mulch Direct Land Application Mulch Compost Feedstock Co-compost Bulking Agent
Yard Trimmings co-collected with food scraps	Chipped and/or ground; composted	Compost
Food Scraps	Composted Digested	Compost Biogas and digestate

Voluntary “Take Back” Programs

Methods for Promotion of Voluntary “Take Back” Programs

The Austin Zero Waste Strategic Plan included the following recommendations for take-back programs.

- Be a strong advocate for Extended Producer Responsibility (EPR) legislation and programs regionally, statewide and nationally. Work to form the Texas Product Stewardship Council composed only of representatives of local government to clearly address this “unfunded mandate.”

- Work to obtain legal authority and regional cooperation to ban problem products and packaging or require businesses and institutions to take back designated products and packaging sold in Austin, CAPCOG, and in the State that are toxic in their manufacture, use, or disposal, and/or are not currently recyclable in the area.

EPR, also known as Product Stewardship, is a government strategy to place the responsibility for end of life product management on the producer and consumers of a product and not the general taxpayer or local government.

Recognizing that the City needed to partner regionally and statewide to achieve effective EPR legislation, the City participated in the development of the Texas Product Stewardship Council.

The Texas Product Stewardship Council was formed to shift Texas' product waste management system from one focused on government funded and ratepayer financed waste diversion to one that relies on producer responsibility in order to reduce public costs and drive improvements in product design that promote environmental sustainability. The Texas Product Stewardship Council works to integrate the principles of product stewardship into the policy and economic structures of Texas.¹

During the *Integrated Solid Waste Management Master Plan* scoping meetings held in July and August 2009, stakeholders directed the City to identify materials that are appropriate for take-back and profile model voluntary take-back programs for consideration in the plan.

Materials Types Appropriate for Voluntary Take Back

The focus of the product stewardship initiatives in North America in recent years has been on hard-to-recycle or toxic materials. Several states, including Texas, Washington, and New York have adopted legislation requiring manufacturers who sell computers to provide convenient and free computer recycling. Additional materials targeted in recent years for take back include: batteries, cell phones, other mercury-containing products, fluorescent lighting, plastic bags, medical sharps, paint, solvents, used oil, oil filters, oil containers, pesticides, pesticide containers, pharmaceuticals, and tires. In addition, beverage containers have been taken back to stores that sell them for decades in eleven states with "Bottle Bills". Bottle bills are effective in increasing the recycling rates of cans and bottles. According to the Container Recycling Institute, states with bottle bills have a beverage container recycling rate of around 60 percent, while non-deposit states only reach about 24 percent². Bottle bills are a classic form of producer responsibility legislation where manufacturers, distributors, retailers and consumers take responsibility for their products without burdening local governments. For several years, Massachusetts Congressman Edward Markey has introduced the Bottle Recycling Climate Protection Act in congress which would enact a national bottle bill. Several states, including Louisiana, New Hampshire, New Jersey, Oklahoma, and Tennessee are considering bottle bill legislation. But these bills face stiff opposition from strong lobbying groups including manufacturers and retailers. The beverage and grocery industry lobby was successful in repealing the nation's only

¹ Texas Product Stewardship Council Website <http://www.txpsc.org/> (accessed June 8, 2010).

² Container Recycling Institute <http://www.container-recycling.org/issues/bottlebills.htm> (accessed July 22, 2010).

municipal container deposit ordinance in the U.S. The ordinance was implemented in 1982 and repealed in 2002.

State legislatures have taken a piecemeal approach to legislation by targeting certain “problem products”³ and enacting legislation to regulate certain industries and manufacturers. This “divide and conquer” approach has been effective in getting legislation passed, but has not achieved the goal of comprehensive EPR. To address this issue, the Texas Product Stewardship Council, with support from other state product steward councils and the Product Policy Institute, has adopted framework principles of product stewardship⁴. These principles are intended to guide development of product stewardship policies and legislation that govern multiple products. The framework approach establishes consistent principles, clearly defined roles for all parties, and a transparent process for adding new product types. British Columbia and several other Canadian provinces have adopted the framework approach. Several states, including California, Minnesota, Oregon and Washington are drafting framework legislation.

Municipalities can play a role in advancing state and federal legislation by supporting state and national advocacy groups and by passing local ordinances. The City of Berkeley, California’s 1988 Styrofoam ban led to the nationwide phase-out of Styrofoam use by major fast food retailers including McDonald’s and Burger King. The City of San Francisco, California’s proposed fee on plastic bags led to the statewide requirement that all grocery stores recycle plastic bags. Because of inaction at the national level on climate change, local governments formed the International Council for Local Environmental Initiatives (now called ICLEI – Local Governments for Sustainability)⁵. The City of Austin has been a member of ICLEI since 1993.

While advocating for state and national legislation, the City of Austin can also expand and enhance its voluntary take-back programs and consider mandatory take-back requirements.

Take-back Programs in Other Jurisdictions

The project team documented take-back programs in six other jurisdictions to identify material types appropriate for take-back and strategies for encouraging or requiring take-back initiatives.

Appendix C includes the completed surveys for the voluntary take-back case studies. Summaries of these surveys are included below.

British Columbia, Canada

British Columbia endorses product stewardship as a management strategy guided by the principle that whoever designs, produces, sells or uses a product takes responsibility for minimizing that product’s environmental impact.

³ Toxic or hard-to-recycle materials or materials that create specific environmental impacts, such as cans and bottles in litter and plastic bags and polystyrene in waterways.

⁴ Texas Product Stewardship Council Framework Principles for Product Stewardship <http://www.txpsc.org/framework/> (accessed July 22, 2010).

⁵ ICLEI <http://www.iclei.org/> (accessed July 22, 2010).

Producers can collect and recycle their products or choose to appoint an agency to carry out its duties and report performance. The Provincial government develops legislation and regulations that product stewards must follow. The Provincial government approves the plans, monitors performances and enforces compliance. Local governments of British Columbia may provide facilities and producers must fund those facilities to handle their products. Local governments inform the public of the program and help the stewards by imposing bans. Retailers can be members of the product stewardship organizations and may collect fees at the point of purchase. Consumers should watch what they buy.

Currently in British Columbia the following products fall under product stewardship: beverage containers, electronics, tires, used lubricating oil, filters and containers, pharmaceuticals, paints, solvents, pesticides and gasoline, batteries and cell phones.

Del Norte County, California

The Del Norte Solid Waste Management Authority conducted a pilot battery take-back program in cooperation with the Rechargeable Battery Recycling Corporation (RBRC) and retailers and public sites throughout Del Norte County. Data from the pilot project is from April 2009 through February 9, 2010. For this pilot project, RBRC agreed to accept all batteries – alkaline and rechargeables – in their battery boxes. Authority staff promoted the program to local businesses and community locations, twenty-five of which agreed to participate in the pilot project. RBRC boxes were provided to the collection sites, along with pre-paid shipping labels, initial training, and window stickers to identify the collection sites. Authority provided advertising via newspaper and radio ads. This project has documented that when the public has convenient access to battery collection locations and they know about the program, they will participate and will create a huge increase in compliance with the battery disposal ban with a 3,000 percent increase in recovery.

The Authority documented that a public/private partnership between the battery industry, represented through RBRC, and local governments on the ground working with locations and assisting with advertising, can significantly increase battery collection rates as long as the project is adequately funded and easy to follow. However, without an ongoing funding source, the Authority cannot continue the pilot program and most of these collection sites will stop collecting after the project is over. RBRC indicated they will only continue the co-collection of alkaline and rechargeable batteries through April 2010. However, this project documents the need for a product stewardship approach to household batteries which would provide a sustainable funding source for the collections and advertising. It is now known that RBRC can accept both types of batteries successfully and hopefully this project will make the case to their organization that they can be good stewards of all types of household batteries, not just the rechargeable batteries. The RBRC partnership has played a large role in the success of this project.

New York City, New York

Some items not accepted through New York City's (NYC's) curbside or commercial recycling program must or can be recycled through mandatory and voluntary take-back programs. Certain items are required by law to be accepted by retailers or manufacturers in a mandatory Take-Back Program. Other items are recycled in Voluntary Take-Back Initiatives. The NYC Department of

Sanitation's Bureau of Waste Prevention, Reuse and Recycling manages the implementation and on-going monitoring of NYC's "take back" laws, such as the electronics recycling law and the rechargeable battery recycling law.

The mandatory Take-Back Program requires retailers or manufacturers to accept electronic equipment, auto batteries, bottles and cans, cell phones, motor oil, paper, plastic bags, rechargeable batteries, sharps, and tires. Some of these same mandatory take-back materials are diverted from the waste stream by curbside recycling (paper and bottles and cans). Old tires can be disposed at any NYC Department of Sanitation garage. NYC residents may also drop off auto batteries, motor oil, and car tires to designated Household Special Waste Drop-Off Sites operated by the NYC Department of Sanitation.

Voluntary Take-Back Initiatives are available for the recycling of Clothing & Accessories (clothing, baby items, cosmetics, and metal hangers), Construction Materials (ceiling and flooring, lighting, and thermostats), Kitchen Goods (water filters and #5 plastic), Electronics & Accessories (camera film, cell phones, electronics, ink and toner cartridges, and rechargeable batteries), and Storage and Shipping (boxes, packaging, pallets, and crates). Some of these same voluntary take-back materials are diverted from the waste stream by mandatory or curbside recycling (electronic equipment, cell phones, and rechargeable batteries).

City of Ottawa, Ontario, Canada

Almost 600 retailers and charitable organizations voluntarily make it possible to safely dispose, recycle or reuse unwanted consumer products. The Take it Back! Program ensures that automotive, electronic, garden supplies, health, and household materials are reused, recycled or disposed of properly instead of going to the landfill.

The Take it Back! Program encourages local businesses to "take back" many of the household materials that they sell to ensure they are reused, recycled or disposed of properly. This program provides a convenient and safe way for residents of Ottawa to return household items that should not go in the garbage, to participating retailers and charitable organizations. As well, the program has become an alternative to the residential recycling boxes and Household Hazardous Waste depots. For example, used motor oil, which is accepted at City-run Household Hazardous Waste depots, can be conveniently brought back to many gas stations, garages and car dealerships listed in the program.

Take it Back! partner retailers, charitable organizations and depots are listed in an annual directory and on the City's website at ottawa.ca/takeitback. The directories are available at City Hall, all Client Service Centers, libraries, community centers and some retail locations. The directories list the retailer's name, address, and phone number.

There are mandatory programs in which manufactures and retailers pay into a fund. Manufacturers and retailers are paid by the fund to pick up items. These items include tires, electronics, and household hazardous materials. Currently, pick up locations are voluntary. Electronics pick up pays \$186 per ton.

Each year Take It Back! partners divert over 1,500 tons of material from the municipal landfill. An advantage to the Take it Back! Program is that it diverts from the landfill yet the program is not paid for by the City.

San Luis Obispo County, California

In 2000, California state law mandated that it is illegal to dispose of universal wastes in landfills. Universal wastes contain mercury, lead, cadmium, copper and other substances hazardous to human and environmental health and are generated by a wide variety of people. Households and small businesses were exempt from the state's Universal Waste Rule until February 2006.

A county-wide ordinance, effective since April 2008, established a Take-Back Program for household batteries, cell phones, and fluorescent lighting in San Luis Obispo (SLO). Retailers who sell these items are required to take back those items from the public for free disposal. In 2009, the SLO Integrated Waste Management Authority implemented the "SLO Take-Back Program" for latex paint. These programs are made possible through the Authority and a grant from the State of California. San Luis Obispo County's retail take-back program includes the retail collection of household batteries, fluorescent tubes, fluorescent light bulbs, sharps, and latex paint, all of which will ultimately be recycled or properly disposed.

More than 300 local businesses take back batteries. Approximately forty-two pharmacies collect sharps. Approximately forty-two paint stores collect latex paint. More than 100 stores collect fluorescent bulbs. A list of participating retailers can be found online at <http://www.iwma.com/index.html>. All retailers selling cell phones, latex paint, household batteries and fluorescent tubes and bulbs in San Luis Obispo County are required to take them back.

Santa Clara County, California

The State of California has responded to individual product threats to health and safety at end-of-life by banning them from landfills. Santa Clara County has Household Hazardous Waste (HHW) Programs for residents and small businesses as a safe disposal alternative. HHW Programs statewide have become the default collection mechanism for a growing list of problem products common to households and small businesses. Although HHW programs on average serve less than 7 percent of the households in any jurisdiction and collect a small fraction of the products they are intended to target, they are costly to operate and stretch local government budgets beyond their limits.

Until EPR legislation is in place, Santa Clara County operates a HHW program and encourages voluntary participation of retailers in Take-it-Back programs. Santa Clara County operates a HHW program for paint, fluorescent lamps, batteries, and sharps. The Santa Clara County HHW Program created the Retail-Take-it-Back Partner Program. This program establishes partnerships with local retailers to serve as collection points for fluorescent lamps, batteries, and sharps. The HHW program provides Retail Take-it-Back Partners with supplies to collect the wastes from the community and pays for recycling those products collected.

As of October 2009, 66 retailers are participating in the collection of batteries and 32 retailers are collecting fluorescent lamps. The County focuses its promotions now on retailer take back locations, rather than its HHW locations.

Lessons Learned

Voluntary vs. Mandatory

Voluntary programs, such as those in Ottawa, Canada and Santa Clara County, California, can be effective, but are limited to the materials that retailers are willing to accept and recycle on their own or those materials that the local government agency is willing to pick-up as part of its HHW program. Voluntary programs directly affect the retailers (who are willing to accept the materials), but generally do not affect manufacturers or achieve true EPR. Voluntary programs mostly serve to make recycling of HHW or other difficult-to-recycle materials more convenient for generators. Based on the survey of local retailers (summarized below), retailers were generally open to taking back products or packaging that they sell provided that it is convenient and did not impose a burden to them or their customers. A disadvantage of voluntary programs is that if the local government does not pay for the cost of collection, the retailers may drop the program (as in Del Norte County, California). Best practices for voluntary take-back include:

- Promoting participating retailers by including them in City publications and websites.
- Publishing a Take-it-Back guide.
- Ensuring that materials (handled by the City) are collected regularly and don't accumulate.

Mandatory programs can be more effective in diverting materials and achieving true EPR, by sharing the burden of collection across all retailers and incorporating the costs of recycling or proper disposal into the cost of the products and packaging. Mandatory programs also serve to encourage manufacturers to support statewide legislation. Industries typically prefer uniform regulations, rather than complying with a patchwork of requirements across the state. A disadvantage of mandatory programs is that they may be considered onerous and an undue burden on local retailers or manufacturers. City leaders would need to have the political will to overcome these obstacles. Voluntary programs can also be compatible with mandatory requirements (as in NYC). The City may want to consider a phased approach:

- Solicit the participation of a wide variety of retailers to participate in a voluntary take-back program.
- Match retailers to recyclers for recyclable products and packaging.
- Provide City collection of HHW, as an extension of the HHW program.
- Promote retailers that participate in the program through City publications.
- Assess effectiveness of voluntary measures and consider mandatory requirements.
- Encourage regional and statewide approaches to EPR.

Targeted Materials

As described above, the goal of EPR is to ensure that manufacturers, retailers and consumers take responsibility for their products and packaging. Thus, national and state advocacy groups are working toward EPR framework legislation to maximize the number of materials included in EPR regulations. Until the costs of recycling or proper disposal are included in the costs of the products

and packaging, the burden of recycling and proper disposal will stay with local governments and ratepayers instead of manufacturers and consumers. Materials appropriate for voluntary take-back include materials that are easy for retailers to handle or help to promote their brand or location (plastic bags and hangers at dry cleaners, bicycles and bicycle parts at bike shops, bubble wrap and Styrofoam pellets at packaging stores). Other materials appropriate for voluntary take-back include those materials that the City is willing to pick up as a part of its HHW program (such as batteries and compact fluorescent light bulbs [CFLs]).

Financing

Costs for local take-back programs can vary based on:

- Who is responsible for recycling or disposing of the materials.
- Whether the local government enforces the take-back program pro-actively or only in response to complaints.

In San Luis Obispo County, California, initial funding for the collection program was provided through a state grant. After the grant funds were depleted, the costs of recycling or proper disposal were the responsibility of the retailers. In Del Norte County, California, the pilot battery recycling program was funded through the RBRC through April 2010. However, without on-going funding the program will end, as neither the retailers nor the county can take on the costs of the program.

The City can continue to expand its current voluntary take back programs, while supporting more comprehensive strategies at the state and national level. Under this scenario, the City could solicit participation from additional retailers to collect materials that are cost-effective for the retailers to recycle (low cost, free or revenue-generating). Costs (or revenues) would be borne by the retailers.

The City could also work with retailers willing to collect materials, such as batteries and CFLs that the City is able to pick up through its HHW programs. Costs for collection and recycling or proper disposal would be borne by the City.

The City could also make take back requirements mandatory in order to ensure that retailers and manufacturers take responsibility for the end of life of their products and packaging. Under this scenario, the City would pass an ordinance requiring take back of materials targeted in the ordinance. Costs for recycling or proper disposal would be borne by the retailers (and/or manufacturers).

Local Retailer Profiles

The project team surveyed ten local retailers on the feasibility of accepting materials for take back. These are included in Appendix C.

Barton Springs Nursery

Barton Springs Nursery is a garden center that specializes in plants that are indigenous to the central Texas region. The nursery is privately owned and has been in operation since 1986. The nursery grows the majority of the plants they sell on site. Barton Springs Nursery currently takes back the plastic pots they sell plants in as long as they are in good condition. They sterilize the pots and reuse them in their nursery.

They would be willing to take back any plastic pots if they had a place that would recycle them. They are willing to take back any item as long as the item can be recycled without additional cost. Some items that come to mind are mulch, fertilizer and soil bags, yard clippings, and unopened fertilizer containers.

Batteries Plus

Batteries Plus started in 1988, and has become the nation's largest and fastest growing battery retailer, selling more than 40,000 types of batteries and battery-related products to consumers, businesses, and government entities at the national and local levels.

Batteries Plus helps to recycle spent batteries as a means to reduce waste in landfills, stop harmful chemicals from contaminating soil and water, and preserving the environment by decreasing the need for new raw materials. Batteries Plus recycles the majority of the batteries it sells, including: lead acid (Pb) batteries used in cars, trucks and emergency lighting, Nickel Cadmium (NiCd) batteries used in cordless phones, cordless tools and two way radios, Nickel Metal Hydride (NiMH) batteries used in camcorders, bar code scanners and digital cameras, Lithium Ion (Li Ion) or Lithium Polymer (Li Poly) used in cell phones and laptops.

Batteries Plus is very interested in continuing to serve as a depository site for household-type batteries, but is not willing to accept any other materials for either recycling or reuse because their space is very limited. The City of Austin provides the retailer up to ten 5-gallon buckets to collect recycled batteries. They have had difficulty with City of Austin staff picking up the bucket-full of batteries for recycling. The City does not accept batteries dropped off by customers that are not accepted at the City recycling facility. Since Batteries Plus is providing a service to the public, they would like the City to take all the batteries and separate them at its own recycling facility.

Bicycle Sport Shop

Bicycle Sport Shop is a locally owned and operated full service bike shop with two store locations in Austin, Texas. Bicycle Sport Shop has a service department that offers tune-ups and repairs to most bicycles and also offers a fitting service, bike and equipment rental, and educational clinics on bike riding and maintenance. Bicycle Sport Shop does not currently have a take-back program in place. At one time they had a tire and tube drop off and they used money they earned from recycling cardboard to ship the rubber out of state. At this time, they cannot find a recycling center that takes back rubber so they terminated the program. They are willing to take back batteries and they currently take them to Batteries Plus, a local battery retailer.

The shop will take back used bikes and will donate them along with in-house used bikes to the Austin Yellow Bike Project. The Austin Yellow Bike Project (YBP) 501c(3) is an all-volunteer initiative to put bicycles on the streets of Austin and Central Texas by operating community bike shops, teaching bike mechanics and maintenance, and acting as a local bike advocacy group. (www.austinyellowbike.org).

The biggest factor is storage for take-back products. The shop used 50 gallon barrels for tubes and had them shipped. They would still be willing to do this if subsidized for the shipping fee. They are

willing to take back used bikes and transport them to Austin Yellow Bike. They are also willing to take back used bike parts if they can find a place to recycle them.

Commercial Surface Installations

Commercial Surface Installations is an independently owned Austin based carpet, tile, wood, and stone retailer for floor coverings. They typically sell to businesses, hotels or other commercial developments; however, they do residential installations as well.

The targeted materials include the plastic and wood pallets that the flooring is shipped in, and the old carpet, carpet padding, tile or wood floor covering that is being replaced.

One carpet manufacturer, Shaw, currently takes back carpet with the following restrictions. Carpet must be manufactured by Shaw and be from their Ecoworks product line. Customer must be replacing the carpet with product from Shaw.

The biggest challenge is finding a manufacturer or recycling center to take back targeted items. Another challenge is educating the installers of the take-back program and assisting in minimizing the cost to them for participating in the program.

H-E-B

H-E-B is a San Antonio-based grocery store chain that serves a large portion of Texas. H-E-B is able to accept all plastic shopping bags, newspaper bags, dry cleaning bags, plastic stretch film and all clean, dry bags labeled # 2 and # 4. H-E-B currently accepts and recycles all the plastic film at no fee to the customer. H-E-B is currently conducting a pilot program with the City of Austin to offer paper and cardboard recycling bins at four H-E-B stores. H-E-B collected hard plastics, cardboard and aluminum in large roll off containers at a few Houston area H-E-B store parking lots. The program was discontinued due to the high volume of trash left in the participating store's parking lots. H-E-B does not have plans to collect other recyclables at this time.

Hewlett-Packard Company

Hewlett-Packard (HP) offers free recycling to consumers that ship their old equipment to HP. Custom price quotes are available for large quantities or businesses.

HP's state-of-the-art recycling facilities process each return through a multi-phase recycling process. Products are sorted and shredded, then separated into plastics and metals. Print cartridges are further separated into residuals of ink, foam or toner. Materials are then processed into their raw forms so they can be used in automotive parts, microchip processing trays, serving trays, spools, hangers, and other everyday products.

HP's recycling of unwanted computer hardware and printing supplies includes: HP Inkjet and LaserJet cartridges for free, any brand of computer hardware, and drop-off locations for rechargeable batteries in the U.S. and Canada.

Live Oak Pharmacy

Live Oak Pharmacy is a privately owned pharmacy located in downtown Austin. It is a hybrid (compounding) pharmacy which promotes pharmaceutical and homeopathic health care and

wellness. Live Oak Pharmacy retails manufactured and custom prescriptions, over the counter medication, first aid items, and homeopathic medicine.

Live Oak Pharmacy is the first pharmacy in Austin to offer a Medication Take-Back program. Targeted materials include expired or unused medicines. By law they are not allowed to take back drugs that are classified as a controlled substance (Class C2-5) unless law enforcement is present. They also take back syringes. They take back medicine bottles and other plastics after removing labels as long as they are recyclable under the City of Austin's recycling program.

Currently Live Oak Pharmacy pays Sharp Compliance Inc. for shipping envelopes and containers. They take back syringes generated from home for free if the resident uses a pre-purchased container from Sharps Compliance, which are available for purchase at the pharmacy.

Specs Wine, Spirits & Fine Food

Specs is a Texas based liquor store and has been owned and operated by the same Houston family since 1962. They have five stores in Austin and are open to taking materials back if the City provides a way to recycle and transport items. The stores currently take back wine bottle corks which benefits cancer charities. They recycle cardboard and plastic shipping materials which are picked up three times per week. Space to store cardboard is the biggest challenge; they are currently trying to get a baler for cardboard.

The Light Bulb Shop

The Light Bulb Shop is a locally owned retailer of a very wide variety of residential and commercial light bulbs. Within the last six months, Austin Energy requested the retailer to accept burned-out fluorescent light bulbs, and provided the retailer with buckets in which to temporarily store them. Austin Energy staff collected these buckets once, but has not provided the retailer replacement buckets to continue recycling such light bulbs.

While the retailer indicated they would accept light bulbs from customers, they admitted they would simply throw them away in their dumpster. The retailer indicated that since they don't know of a commercial light bulb recycler, it is not feasible for them to accept light bulbs for recycling purposes.

Westbank Dry Cleaning

Westbank Dry Cleaners is a privately owned full service dry cleaners located in Austin, Texas. Their facilities include one plant and eight store locations in central and west Austin. Currently, Westbank Dry Cleaners accepts plastic bags and clothes hangers. Hangers that match their hanger specifications are reused on the site. Other hangers, the plastic and cardboard type, are recycled through Cycled Plastics Company. Westbank Dry Cleaners reported that the take back of hangers and plastic bags is very feasible. There is an issue of having sufficient storage for the hangers, plastics, and cardboard; however, Cycle Plastics picks up from their plant once a week for no charge.

Whole Foods

Whole Foods is the nation's largest natural and organic food supermarket grocery store chain. At present Whole Foods recycles — glass, paper, plastic, aluminum cans, film plastic (packaging), styrofoam #6, cork, and food scraps. Most of the recycled materials are bought by customers in the

store, but materials are accepted for recycling if left outside the store next to the recycling bins at the door. Whole Foods discontinued providing plastic bags at its checkouts, sells re-usable shopping bags, and gives money back at the register every time a customer re-uses a bag. The store located at the Gateway Shopping Center in northwest Austin has transitioned to a single-stream recycling collection process. The North Lamar Blvd. store will soon transition to the single-stream approach from its current process of accepting recyclables in separate bins marked for the distinct materials. Whole Foods does not advertise itself as a “take back” location due to lack of space in their North Lamar Blvd. facility.

Summary

The retailers were generally open to taking back products or packaging that they sell provided that it is convenient and did not impose a burden to them or their customers. Some expressed concerns about taking materials back without adequate recycling infrastructures. Others noted that they were space-constrained and that they would not be interested in requiring their customers to pay for take-back. To enhance the City’s voluntary take back programs, the City may wish to ensure that the materials are collected routinely to address storage capacity issues at the local retailers. If the City wishes to expand its voluntary take-back programs, it could document the retailers willing to take back materials for recycling and publish and promote these retailers on the City’s website and in other City publications.

Mechanisms for Regulating Private Service Providers and Generators

For this task, the project team conducted research to determine:

- What regulatory authority the City has to control waste;
- How much authority the City can assert over generators of waste; and
- What options are available to impress upon waste generators to encourage them to assist in creating/contributing to market development.

Regulating Private Service Providers

What Regulatory Authority Does Austin Have to Control Waste?

The Health and Safety Code of Texas⁶ allows counties to appropriate and spend money from its general revenues to manage solid waste and to administer a solid waste program and may charge reasonable fees for those services. As sufficient funds are made available by the commission, a county shall develop county solid waste plans and coordinate those plans with the plans of: local governments, regional planning agencies, and other governmental entities, as prescribed by *Subchapter D, Chapter 363*; and the commission. Based upon *Section 363.063*, local government shall

⁶ Title 5. Sanitation and Environmental Quality, Subtitle B. Solid Waste, Toxic Chemicals, Sewage, Litter, and Water, Chapter 361 Solid waste Disposal Act, Subchapter A. General Provisions, Section 361.153. County Solid Waste Plans and Programs; Fees

develop a local solid waste management plan. *Subchapter F. Local Solid Waste Services and Regulation, Section 363.111 Adoption of Rules by Public Agency* states that a governing body may adopt rules for regulating solid waste collection, handling, transportation, storage, processing, and disposal.

The City of Austin is required to assure that solid waste management services, whether public or private are provided to all persons within its jurisdiction by *Section 363.113. Establishment of Solid Waste Services*. The City has authority to control waste via fees per *Section 363.119. Funding Solid Waste Services*. It states “a public agency may establish, charge, and collect fees, rates, charges, rentals, and other amounts for services or facilities provided under or in connection with a contract. Those fees, rates, charges, rentals, and other amounts may be charged to and collected from the residents of the public agency, if any, or from users or beneficiaries of the services or facilities and may include water charges, sewage charges, and solid waste disposal fees and charges, including solid waste collection or handling fees. The public agency may use and pledge those fees, rates, charges, rentals, and other amounts to make payments required under a contract and may enter into a covenant to do so in amounts sufficient to make all or any part of the payments when due.” Furthermore, “a public agency that has taxing power, and that at the time of entering into a contract is using its general funds, including its tax revenues, to pay all or part of the costs of providing solid waste collection, transportation, and disposal services, may agree and pledge that the contract is an obligation against the taxing power of the public agency.”

Based upon the aforementioned legislation, the City of Austin has the authority to control waste via fees to the public if the “contract” (between the City and residents/businesses) is assumed to include the solid waste plan required by Sections 363.063 and subsequently control waste via fees based upon sections 363.111 and 363.119. The City of El Paso is implementing municipal flow control citing the recent Supreme Court ruling in *United Haulers Association Inc. v. Oneida-Herkimer Solid Waste Management Authority*.

Regulating Generators

How Much Authority Austin Can Assert over Generators of Waste?

On April 30, 2007, the U.S. Supreme Court ruled in **United Haulers Association Inc. v. Oneida-Herkimer Solid Waste Management Authority**, 127 S.Ct. 1786 (2007) that local governments are permitted to engage in the flow control of waste to government-owned and operated disposal facilities in specific circumstances. The Court concluded that flow control laws that favor government-owned and operated disposal facilities do not discriminate against interstate commerce, and are reviewed under a more lenient Pike balancing test. The Court's decision narrows the impact of the Court's *Carbone* decision in 1994 (see below). Some public sector advocates and officials argue that the court's 2007 decision does not preclude flow control to publicly-owned, privately-operated disposal facilities.

In August 2008, a federal appeals court in Pennsylvania reversed a lower court decision that had struck down a flow control law, and remanded the case for analysis under the Pike balancing test. *Lebanon Farms Disposal, Inc. vs. County of Lebanon*, No. 06-3473 (3d Cir. Aug. 6, 2008). In March

2008, a federal district court in Georgia, relying on the U.S. Supreme Court's *United Haulers* decision, upheld a flow control law directing waste to county-owned and county-operated landfill. See *Quality Compliance Services, Inc. v. Dougherty Cty.*, No. 05-CV-19 (M.D. Ga.) (Mar. 31, 2008). That same month, a federal district court in Pennsylvania enjoined a county flow control law directing waste to a county-owned, but privately-operated transfer station. *NSWMA v. Delaware County Solid Waste Authority*, No. 08-CV-1170 (E.D. Pa).

The U.S. Supreme Court had ruled in *C&A Carbone, Inc. v. Town of Clarkstown*, 511 U.S. 383 (1994) that flow control violates the "dormant" Commerce Clause. Between 1994 and 2007, several exceptions to this general principle have developed. The scope of these exceptions, and their application to specific factual circumstances involving solid waste, continue to be litigated in the federal courts.

The U.S. Supreme Court's decision in the *United Haulers* case resolved a split between the Second Circuit and Sixth Circuit concerning whether flow control laws that benefit government-owned and operated waste disposal facilities are subject to more lenient review under the Commerce Clause than similar laws benefiting privately-owned or operated waste disposal facilities. The case involved flow control laws enacted by a waste authority in New York. The flow control laws were initially struck down by a federal district court applying *Carbone*, but a federal appeals court (Second Circuit) ruled flow control laws that designate government-owned disposal facilities are subject to the lenient Pike balancing test, and not the "virtually per se illegal" test applied by the Supreme Court to strike down *Clarkstown*, New York's flow control law in the *Carbone* case. The Second Circuit concluded the benefits of the flow control law outweigh any possible burden on interstate commerce. The Supreme Court upheld that decision in its April 30, 2007 opinion.

Based upon the following summary of court rulings, the City of Austin has the authority to engage in waste flow control within its jurisdictional boundaries. The City of El Paso is moving forward with municipal flow control citing recent Supreme Court rulings.

Non-Discriminatory Flow Control Exception

These decisions hold that if the process by which local governments select specific service providers or facilities is non-discriminatory, then requiring the use of these providers or facilities does not violate interstate commerce.

- [Maharg, Inc. v. Van Wert Solid Waste Management District](#), 249 F.3d 544 (6th Cir. 2001).
- [Houlton Citizens Coalition v. Town of Houlton](#), 175 F.3d 178 (1st Cir. 1999).
- [Harvey & Harvey, Inc. v. Chester County](#), 68 F.3d 788 (3d Cir. 1995).

Market Participant Exception

These decisions consider whether a government entity is a "market participant" instead of a regulator, so that the government entity is not subject to the "strict scrutiny" test set forth in the *Carbone* decision and other cases.

- [Southern Waste Systems, LLC v. City of Delray Beach](#), No. 04-13035 (11th Cir. Aug. 15, 2005) (exclusive franchise does not violate Commerce Clause; whether local government bills customers under such a franchise is not relevant to inquiry).

- [Huish Detergents, Inc. v. Warren County](#), 213 F.3d 707 (6th Cir. 2000)
- [Sal Tinnerello & Sons v. Town of Stonington](#), 141 F.3d 46 (2d Cir. 1998)
- [NSWMA v. Williams](#), 146 F.3d 593 (8th Cir. 1998)
- [USA Recycling, Inc. v. Town of Babylon](#), 66 F.3d 1272 (2d Cir. 1995)
- [SSC Corp. v. Town of Smithtown](#), 66 F.3d 502 (2d Cir. 1995)

Intrastate Flow Control Exception

These decisions consider whether government laws directing all solid waste to specific in-state facilities, but allowing such waste to be processed at out-of-state facilities, implicate the Commerce Clause.

- [IESI Ar. Corp. v. Northwest Arkansas Regional Solid Waste Mgmt. Dist.](#), 433 F.3d 600 (8th Cir. 2006)
- [On The Green Apartments L.L.C. v. City of Tacoma](#), 241 F.3d 1235 (9th Cir. 2001)
- [U&I Hauling v. City of Columbus](#), 205 F.3d 1063 (8th Cir. 2000)
- [Ben Oehrlens and Sons & Daughters, Inc. v. Hennepin County](#), 15 F.3d 1372 (8th Cir. 1997)
- [Randy's Sanitation v. Wright County](#), GS F. Supp.2d 1017 (D. Minn. 1999)
- [Coastal Carting Ltd., Inc. v. Broward County](#), 75 F. Supp. 2d 1350 (S.D. Fla. 1999)
- [Waste Management of Michigan v. Ingham County](#), 941 F. Supp. 656 (W.D. Mich. 1996)
- [Vince Refuse Service, Inc. v. Clark County Solid Waste Management District](#), No. 93-319 (S.D. Ohio 1995)

Economic Flow Control Exception

These decisions consider whether using market forces such as fees to encourage solid waste to favored facilities violates the Commerce Clause or applicable state solid waste laws.

- [Waste Connections of Nebraska, Inc. v. City of Lincoln](#), 269 Neb. 855 (May 27, 2005) (\$7.00 per ton tax imposed on all haulers who tip waste in Nebraska "is not a burden on interstate commerce")
- [Oxford Associates v. Waste System Authority of Eastern Montgomery Cty.](#), 271 F.3d 140 (3d Cir. 2001) (\$76.25 per ton generator fee "offends the Commerce Clause")
- [City of Paterson v. Passaic County Board of Chosen Freeholders](#), 164 N.J. 270 (2000) (striking down NJ waste fees imposed to incentivize use of favored waste facilities, on state law grounds)
- [Zenith/Kremer Waste Systems, Inc. v. Western Lake Superior Sanitary District](#), 572 N.W. 2d 300 (Minn. 1997), cert. denied, 523 U.S. 1145 (1998) (upholding \$28 per ton waste fee coupled with \$24 per ton reduction in tip fee as not violated Commerce Clause)

Summary

The City of Austin appears to have sufficient authority over private sector haulers through exerting flow control or economic flow control and entering into exclusive or non-exclusive franchises. Therefore to increase recycling and standardize services, the City may wish to enter into non-exclusive franchises with its permitted haulers or establish exclusive franchise collection zones within the City.

Mechanisms for Regulating Private Service Providers

The City ensures that all generators in the City receive solid waste collection services through several regulatory mechanisms:

- **Single family residences and multi-family units up to four units (with cart service)**—receive cart collection service provided by City crews. City crews collect solid waste and single-stream recycling in carts and yard trimmings in containers provided by residents.
- **Multi-family units up to four units (with dumpster service)**—receive dumpster service provided by a private collector through a contract with the City. No recycling or yard trimmings are collected.
- **Commercial businesses (with cart service)**—Approximately 2,000 commercial generators in the City receive cart collection. Approximately 200 accounts also receive single-stream recycling in carts.
- **Multi-family complexes and Commercial businesses in the Central Business District**—In excess of 600 multi-family and commercial generators receive dumpster and compactor service provided by a private collector through a contract with the City. Approximately 70 accounts also receive cardboard recycling service and about 12 accounts receive glass recycling service.
- **Multi-family complexes and commercial businesses outside of the Central Business District**—Multi-family and commercial generators outside of the Central Business District receive dumpster and compactor service provided by private collectors licensed by the City. There are currently 13 licensed private solid waste collectors operating within the City. The City requires that all businesses with 100 employees or more and multi-family properties with 100 units or more must provide on-site recycling services. Under this requirement, businesses and multi-family properties continue to choose their own waste haulers and recyclers and to negotiate prices for these services.

Currently, the City directly controls approximately 25 percent of materials generated within the City through City operations and contracts. Approximately 68 percent of materials generated in the City are controlled by private sector collectors licensed by the City and private recyclers operating in the City. The remaining 7 percent of materials generated in the City are self-hauled to landfills and recycling centers.

The City is currently developing an ordinance that would require all commercial and multi-family generators to have recycling services. The City may also wish to consider options for increasing diversion from disposal through new permit requirements, exclusive or non-exclusive franchises, or new permit areas.

Key Policy Considerations

In deciding how to regulate solid waste collection within the City, the City will need to consider several key policy issues and determine their relative importance.

- Does the City wish to achieve a potentially more efficient system that creates economies of scale by limiting solid waste collection operations by number or geography?
- Does the City wish to maintain the status quo (or maintain it to the extent possible) in which all solid waste collectors currently operating within the City retain their current customer base? Solid waste collection is currently provided on a free market basis with very little intervention from the City.
- Should the City seek to include all of the current licensees in the new regulatory framework, or limit the process to just the licensees now providing regular service in the City?
- To what extent should disruption to solid waste generators be minimized?
- To what extent are there contractual protections that the City would like to have with a bilateral basis with the haulers? E.g., assurance of performance, minimum insurance requirements, indemnity provisions, etc. Note, these types of provisions can be particularly important for ensuring continuity of service in exclusive service areas.
- Are there other factors, such as reducing truck traffic or directing solid waste to designated facilities that would influence the direction that the City should pursue?
- Some private sector solid waste service providers in the City have resisted changes in regulations and lobbied to keep the status quo. The City will need to engage with these stakeholders to determine what they would prefer the City do regarding regulation and enforcement.

Regulatory Options

Background

Local jurisdictions may regulate solid waste collectors through collection contracts, franchise agreements, permits, and licenses.

“Franchise” means a written contract, or agreement, entered into between a local jurisdiction and a solid waste hauler in which the local jurisdiction grants to the hauler the right to collect and haul solid waste and/or recyclables as permitted by law from residential and/or commercial customers in a specified area or areas. Both collection contracts and franchise agreements are mutual agreements between parties. Through a franchise agreement or collection contract a hauler may agree to

requirements that cannot be imposed unilaterally by the local jurisdiction, such as flow control (where solid waste is directed to a designated facility) or the payment of franchise fees (fees imposed as a percentage of gross revenues).

“Permit” or “License” systems are established by local ordinance to regulate solid waste collection activities. The City Council, or local governing body, may establish a system of permits to regulate the collection, transfer, and removal of solid waste by granting permits or licenses to qualified applicants who meet the standards set forth in the local ordinance. The local governing body has the authority to revoke permits where a permittee has failed to meet the standards of the permit or has violated the laws or ordinances applicable to solid waste collection, transfer, and removal. The local ordinance may establish permit requirements such as minimum service levels, diversion requirements, reporting, and minimum insurance levels, and the applicant must comply with those regulations. Permits may be issued on a jurisdiction-wide basis or through exclusive permit areas.

Exclusive and Non-Exclusive Service Areas

When using any of the approaches listed above (franchise, contract, permit, or license), a local jurisdiction may establish exclusive or non-exclusive service areas. The service area may include the entire area of the local jurisdiction or a local jurisdiction may elect to split up the service area by geographic, political, or demographic boundaries.

Permit Areas and Franchise Areas

Depending on the needs of the generators within a geographic or political boundary, or the degree of regulation desired, a local jurisdiction may establish exclusive or non-exclusive permit areas or franchise areas. Some jurisdictions use a combination of approaches, depending on the needs of the service area. There is no one “correct” approach and pragmatism is often a guiding principal for counties undertaking this process.

Contractor Term Length

Implementation of new diversion programs, such as recycling and organics collection, will require the provision of new vehicles and containers and may require investment in new facility development or facility expansion. Solid waste collectors typically amortize equipment over a seven to 10 year period. Amortizing these costs over a shorter period will increase costs.

Funding City Expenses

Administration of new permit requirements or franchise agreements will require additional staff time for contract management or hauler monitoring. Administrative fees and program implementation fees may be assessed on both permits and franchises. However, fees on gross revenues, such as a 10 percent franchise fee, are more commonly levied on franchise agreements rather than through permit requirements.

Solid waste collection programs are typically funded through user fees where waste generators pay a monthly or quarterly collection fee for service. Some communities include a special assessment on the property tax rolls or consolidate billing with other utilities.

Issues in Implementation

Customer Billing Issues

It is important to consider which party will be doing the billing and bill collection. The haulers will be very interested in their ability to cut-off service to non-paying customers, and the role of the City (if any) in assisting with bad debt collection. The City Attorney's office should review any implications that may arise from using a property lien process.

Rate Structures

The City may establish collection rates to be charged by the permitted or franchised haulers or it may allow haulers to establish their own rates. Should the City elect to establish exclusive permit areas or franchises, it will be appropriate for generators with the same level of service within the same permit or franchise area to be charged the same rate (this is not currently the case in some areas of the City). Setting rates for exclusive areas is a challenge and the rates should reflect the best understanding of the costs of providing service in that area, and bear a reasonable and defensible relationship to rates in any adjacent or nearby areas. Cities employ a variety of means for setting non-exclusive commercial and debris box rates, ranging from no regulation to setting an upper limit, or developing a band with upper and lower limits.

Ease of Implementation

Any change to the status quo will result in some disruption of service for some generators and haulers. New permit conditions, or new franchise or permit areas, will require an effort on the part of the City to educate generators and haulers about the new requirements. The Request for Applications or Request for Proposals would specify minimum requirements and qualifications and would require haulers to submit work plans that specify how they would transition to new services, achieve diversion requirements, implement customer service programs, and promote public education activities. All applicants for new permits, or proposers for new service areas, would be required to provide a transition plan addressing how service will be provided on the street, including equipment ordering needs, swapping out of containers, public education regarding changes in service, etc. The City would need to carefully review these transition plans and provide feedback to the haulers to ensure that the new services are implemented with the least amount of disruption to generators in the City.

Infrastructure

Should the City require all of its permitted haulers to provide recycling and organics collection to their customers, some of the haulers will elect to subcontract with other collectors with sufficient existing infrastructure. Other haulers may need to invest in additional processing capacity and will need a sufficient franchise or permit term to allow them to amortize the equipment cost-effectively. It may also be useful to use the negotiation process to "lock in" private processing facility tip fees for those service providers that do not have their own facilities, and may otherwise be at the mercy of other haulers.

Monitoring and Reporting

Any of the regulatory approaches that the City could consider will require an increased level of monitoring and reporting. Tonnage reporting from business generators and/or permitted haulers to track diversion progress is critical to achieve the city's goals. The City would need to require that haulers report their tons diverted by jurisdiction and by categories specified by the City (e.g., by generator, by material type, by zone). Additional City resources will be needed to monitor new franchises or new permit conditions, ensure that each hauler is complying with the requirements, and process the information received from each hauler to establish the diversion levels in the City.

The level of effort in monitoring the haulers will increase with the number of haulers franchised or permitted to operate in the City. However, the difference between monitoring haulers under franchise agreements or new permit conditions is not significant. Whether through a franchise agreement or a permit, the City can assess penalties for failure to submit required reports, including assessing liquidated penalties.

Enforcement

Under any approach selected by the City, the City would need to increase its enforcement activities. To ensure full participation in the programs offered by the franchised or permitted haulers it would be desirable that generators be included in the mandatory recycling ordinance. Typically, recycling service is offered as a component of the integrated waste management program of a municipality and the costs for the service are included in the solid waste collection bill. Many jurisdictions require that generators source-separate materials for collection. Enforcement is sometimes necessary to compel generators to pay for recycling services. It is much less common to enforce requirements to source separate except in egregious cases where, for example, a property owner refuses to allow his or her tenants to receive recycling collection services.

Should the City elect to form exclusive franchise areas, the City will need to enforce the requirement that haulers do not illegally provide service outside of their designated service boundaries. Typically, the franchised or permitted haulers monitor this activity and would report violators to the City. City regulations would need to address how violators would be punished, including assessment of liquidated penalties, misdemeanors, or infractions.

The following table outlines the basic ingredient list of program elements to be considered in developing permit or franchise systems in the City. The advantages and disadvantages of each approach have been included to assist City staff and stakeholders in narrowing the options for evaluation in the *ISWMMP*. Note that the City may well choose to combine differing approaches in different areas of the City, e.g., a combination of exclusive and non-exclusive service areas, or of regulated and non-regulated rates.

Advantages and Disadvantages of Permit/Franchise Project Elements

Project Element	Advantages	Disadvantages
A. Regulatory Framework		
1. Exclusive permit/franchise areas	<p>Potentially creates a more efficient system</p> <p>Reduces the number of trucks on the street providing service</p>	<p>Less competition may mean higher proposed hauler costs</p> <p>Rates must be set with care, in relationship to the service package, and rates in other cities</p>
2. Non-exclusive permit/franchise areas	<p>Preserves status quo</p> <p>Provides commercial service competition</p> <p>Rate setting is simpler since proposed rates can be compared</p>	Potentially less efficient
3. Establishing permit areas	<p>Allows City to unilaterally dictate terms and permit requirements</p> <p>Can assess fees on gross revenues</p>	<p>Cannot impose flow control</p> <p>May not have other protections afforded by a contract</p>
4. Entering into franchise agreements	<p>Can preserve flow control</p> <p>Can assess franchise fees</p> <p>Allows for long term investment in programs and facilities</p> <p>Increases enforcement capability</p>	Requires procuring or negotiating multiple agreements (which may not be identical)
5. City setting collection rates	Only option in exclusive areas	More difficult to set exclusive area rates since direct market comparison is not possible
6. Allowing haulers to set rates	Optimal in non-exclusive areas to preserve competition and hold rates down	May wish to set upper limits, or use a band to avoid volatile rates and/or unpredictable City fee revenue
B. Process		

Project Element	Advantages	Disadvantages
1. Negotiating with haulers	<p>Preserves status quo</p> <p>Preserves competition between service areas</p> <p>May keep small locally owned haulers in the process</p> <p>May be politically expedient</p>	<p>Requires strong, broad City Council direction in order to keep the process “on track”</p> <p>Could be time-consuming and may not end up with something they can all live with</p> <p>May include more rather than fewer players and, thus, more oversight and administration</p>
2. Procurement	<p>Will ensure that City gets “market rate” costs</p> <p>Produces the most defensible rates</p> <p>May be the most time effective since the need for negotiation is minimized</p> <p>Consistent with City policy</p>	
C. Key Service Issues		
1. Requiring a basic list of recyclables	<p>Assured that haulers can market materials cost-effectively</p>	<p>Customers often include non-excepted items in recycling program hoping that they will be recycled</p> <p>May not be pushing the haulers to find needed markets</p>
2. Requesting a longer list of materials types for recycling	<p>Standard list for most new programs throughout the state</p> <p>Customers prefer to recycle a wide variety of materials (e.g., 1-7 plastic, rather than just 1-2) and not be restricted by program components</p> <p>More materials for generators to divert rather than dispose</p>	<p>May not have cost-effective markets for some materials</p>

Project Element	Advantages	Disadvantages
3. Keeping roll-off service open	<p>Preferred by haulers and customers to preserve competition</p> <p>No routing associated with roll-off, so route efficiency is not an issue</p> <p>Provides greater choice for large businesses</p> <p>Rates may or may not need to be regulated</p>	<p>If rates are not regulated, City needs to ensure that all areas truly have competitive service</p>

Incentivizing Generators

What Options Are Available to Impress Upon Waste Generators to Encourage Them to Assist in Creating/Contributing to Market Development?

The City of Austin's Zero Waste Goal is to reduce the amount of waste Austinites send to the landfill by 90 percent by the year 2040. Austin took an important step to move toward a more sustainable future by adopting Texas' first Zero Waste Plan for a community.

Without a strong market for recycled materials, there is no incentive to collect recyclables and manufacture recycled-content products. According to the EPA, recycling is estimated to create nearly five times as many jobs as landfilling. The latest national survey (2008) conducted by Columbia University and Biocycle magazine, a national publication, puts the current recycling rate in Texas at approximately 18 percent. A study commissioned by the National Recycling Coalition found the recycling and reuse industry “represents a significant force in the U.S. economy and makes a vital contribution to job creation and economic development.” The study tallied direct and indirect economic impacts of the recycling and reuse industry, finding approximately 4 million jobs created or supported, generating \$130 billion in annual payroll, as large as the automobile industry. Increasing recycling rates can increase state tax revenue. South Carolina discovered in 2006 that every additional 1,000 tons recycled represents 1.68 additional jobs in the state and generates \$3,687 in additional tax revenues to the state. The Environmental Protection Agency estimates that in 2005, the U.S. avoided 48 million metric tons of carbon equivalent emissions (MTCE) by recycling – through a combination of energy savings, forest carbon sequestration, and lower methane emissions. This is the equivalent of taking 36 million cars off the road for one year.

In accordance with Section 361.014 of the Texas Health and Safety Code, grants are awarded to regional and local governments for municipal solid waste (MSW) management projects through the state's Regional Solid Waste Grants Program. The Texas Commission on Environmental Quality (TCEQ) is directed by the Legislature to dedicate one-half of the revenue generated by state fees on MSW disposed of at landfills to grants for regional and local MSW projects.

The TCEQ allocates the funds to the state's 24 councils of governments (COGs) based on a formula that takes into account population, area, solid waste fee generation, and public health needs. The COGs use the funds to develop and maintain an inventory of closed MSW landfills, conduct regional coordination and planning activities, maintain a regional solid waste management plan, and administer pass-through grant programs to provide funding for regional and local MSW projects.

The pass-through grants are eligible to be used for project categories *including Source Reduction and Recycling* which is defined as: “*projects which provide a direct and measurable effect on reducing the amount of municipal solid waste going into landfills by diverting various materials from the municipal solid waste stream for reuse or recycling or by reducing waste generation at the source.*” A strong solid waste development market would provide a strong case when applying for these grants. These grants could be used to develop incentives for commercial development in the form of low tax incentives, interest loans, technical assistance programs, marketing, etc. Please see the following case studies as examples.

As a method to encourage recycling market development, the State of California has developed Recycling Market Development Zones (RMDZs). This program provides attractive loans, technical assistance, and free product marketing to businesses that use materials from the waste stream to manufacture their products and are located in a particular zone. Local government incentives may include relaxed building codes and zoning laws, streamlined local permit processes, reduced taxes and licensing, and increased and consistent secondary material feedstock supply. Local incentives vary from jurisdiction to jurisdiction.

Texas provides a sales tax exemption on all manufacturing equipment and a property tax exemption for recycling equipment that is used for the recycling of a company's own byproducts (does not apply to commercial recyclers).

Additional strategies for incentivizing generators include the following.

"Pay-As-You-Throw" Residential Rate Structures

- Currently residents pay a monthly rate of \$13.50 for a 30 gallon cart, \$18.75 for a 60 gallon cart or \$26.95 for a 90 gallon cart. To incentivize generators to recycle more and waste less, the City may wish to more significantly incline the rates so that generators are paying twice as much for 60 gallons and three times as much for 90 gallons as they are for 30 gallons of service.
- The City may also wish to establish lower rates for generators who have very little waste by providing a 20 gallon mini can rate or a 10 gallon micro-mini can rate.

Adopt Incentives for Businesses to Increase Recycling

- Provide "curbside" recycling services to all businesses small enough to use the same service-level as residential customers. Currently, only a portion of the City's commercial cart customers receive recycling services.
- Require licensed haulers to offer recycling services for free to businesses, or at a discount that is not greater than 50% of the rates for waste hauling services.
- Require licensed haulers to provide at least an equal volume of recycling and garbage bin, cart or can capacity to each business.

- Review commercial garbage rate structure and require licensed haulers to eliminate "volume" discounts for large waste generators.

Adopt Policies for Businesses to Increase Recycling

- Require businesses to submit 2-page form as a "Recycling Plan" with their annual submittal of business taxes that identifies the total amount they pay for solid waste disposal, what they do to recycle, and what are the biggest fractions of their remaining wastes.
- Require businesses to achieve recycling goals.
- Require businesses to source separate designated materials and recyclers to collect those materials.
- Join with other cities and/or County to promote and provide more technical assistance to businesses to help them implement those policies.

Adopt Policies to Increase Recycling for Remodeling and New Construction

- Require deposits on new construction to be refunded if recycling requirements are met.
- Require recycling of C&D debris, use of recycled content products, provision of space for recycling containers, and the establishment of comprehensive recycling and composting services for new construction.
- Adopt permit fees on new construction to cover the costs to the community of implementing community-wide recycling programs for those developments.

Incentives for Companies to Locate and Create Products Using Recycled Materials

- Property tax exemption for buildings, equipment, and land involved in converting waste into new products.
- Sales tax exemptions for waste reduction and recycling equipment and facilities.

Summary

There are many strategies for the City of Austin to consider incentivizing generators to recycle, including: rate structure incentives, increasing recycling services and technical assistance, and mandatory recycling and reporting requirements. The methods discussed above for incentivizing generators should be matched with the appropriate services that the City wants to enhance.

Mechanisms for Regional Cooperation

According to TCEQ, landfills in Travis and Williamson counties receive wastes from between 26 and 33 counties within approximately 100 miles surrounding this area. As described in the Zero Waste Strategic Plan, the City has an interest in preserving the life of these landfills and reducing landfilling in the surrounding region.

Approaches for Regionalization

The City's Solid Waste Advisory Committee (SWAC) Solid Waste Management Districts Subcommittee researched approaches for regional cooperation, including:

- Solid Waste Management Districts
- Interlocal Agreements
- Expanding the Role of CAPCOG

The Subcommittee recommended the development of an Interlocal Agreement (ILA) between the City of Austin and Travis County for the purpose of developing an Austin-Travis County Zero Waste Plan compatible with the Austin Zero Waste Strategic Plan. The approach would form the basis for establishing regional zero waste goals throughout Central Texas. The second step in the process would be for all counties in the watershed to become signatories to an ILA allowing them to produce a comprehensive regional watershed master plan based on Zero Waste. The Subcommittee concluded that it is a relatively uncomplicated process for additional parties to become signatories to existing ILAs, thereby allowing a measured, sequential process of adoption and implementation of regional goals at a pace determined by the parties involved⁷. A summary of the Subcommittee's research is provided below.

Solid Waste Management Districts

A Solid Waste Management District (SWMD) is a Special Law District that is enabled by the State Legislature to offer solid waste management services within its authorized jurisdictional boundaries. The SWMD established to implement the Zero Waste Strategic Plan would encompass all or part of the surrounding 26 to 33 counties that currently send solid waste material to the landfills located in Travis and Williamson Counties.

A single large SWMD can be established at the beginning of the process, with its jurisdiction encompassing all or parts of the surrounding 26 to 33 counties, or a smaller SWMD can be formed at the beginning of the process and be increased in size as other counties join.

⁷ City of Austin Solid Waste Advisory Committee Solid Waste Management Districts Subcommittee Final Report and Recommendations, March 1, 2010.

Several SWMDs have been created in Texas, including North Texas Municipal Water District, Gulf Coast Waste Disposal Authority, and Upper Sabine Valley Solid Waste Management District.

North Texas Municipal Water District

- Serves five cities
- Operates three transfer stations and one landfill for member cities
- Provides free trash drop-off and collection of used motor oil

Gulf Coast Waste Disposal Authority

- Created in 1969
- Owns and operates a non-commercial industrial solid waste landfill for four industrial participants

Upper Sabine Valley Solid Waste Management District

- Serves four counties
- Provides regional water quality protection through solid waste management and regulation of waste disposal
- Operates four transfer stations, five recycling centers, and collects used motor oil

Authority or Process

A SWMD is a “Special Law District” (per Tom Nuckols, City of Austin Assistant City Attorney) that must be created by enabling legislation by the State Legislature and signed by the Governor. If a small SWMD is initially formed, then amending legislation is required to allow each expansion of the SWMD jurisdiction into the 26 to 33 counties.

A General Law District (e.g., Water Control Improvement District, Municipal Utility District, and Special Utility District) can provide some degree of solid waste management services; however, the authority of any particular General Law District to provide solid waste management services would have to be confirmed by reviewing its implementing legislation.

Advantages and Disadvantages

In Texas (and in other parts of the country), SWMDs have provided beneficial and much-needed solid waste management services, but SWMDs have finance and management problems. A SWMD can levy a tax, issue bonds, charge fees for services, and own facilities. Mismanagement of finances can lead to solvency issues for the district.

The ultimate jurisdiction of the SWMD to implement the Zero Waste Strategic Plan would have to encompass all or parts of the surrounding 26 to 33 counties. It would be challenging to obtain the required enabling legislation from the State Legislature to form a SWMD of this size and magnitude and would require considerable resources from the City of Austin to get this legislation passed.

There are no existing SWMDs in Texas that are this large (most are composed of a single county or a portion of a county). However, it's possible that a SWMD that comprised Travis County, Williamson County and the City of Austin would have sufficient scope and authority and might be possible to get the Legislature to act.

Interlocal Agreements

An Interlocal Agreement (ILA) is a legal contract binding participating entities to perform solid waste management services in accord with the agreements defined in the ILA. The ILA can include public and private entities. The initial ILA can be formed between the City of Austin and Travis County (and any other willing participants) and then expanded as other counties and entities are willing to join.

Examples of ILAs for solid waste management services include the Interlocal Agreement between City of Fort Worth, Tarrant County, and Denton County. The City of Austin Solid Waste Advisory Council recommended using a Memorandum of Agreement similar to the ILA used to establish the 8-Hour Ozone Flex Program in the Austin-Round Rock Metropolitan Statistical Area.

City of Fort Worth, Tarrant County, and Denton County ILA

- City of Fort Worth accepts waste from Tarrant County and Denton County HHW at its regional household hazardous waste collection program.

Authority or Process

An ILA requires no enabling legislation. Public and private sector entities can enter into the ILA at their discretion. Nothing is imposed on the parties to the ILA without their consent. No legislative authority can stop or veto the ILA (as long as the entities are legally authorized to enter into an ILA). A “patchwork” of ILAs would probably be required between a variety of public and private entities to provide solid waste management services within the surrounding 26 to 33 counties.

Advantages and Disadvantages

An ILA has similar benefits as a SWMD but without the significant challenges of implementation and administration as for a SWMD. The formation of an ILA requires no enabling legislation. No governmental authority can stop or veto an ILA. The local public entities that are likely to enter into an ILA to provide solid waste management services will have infrastructure and organizational structure in place to implement the regional Zero Waste Strategic Plan. A “patchwork” of ILAs will be required to incorporate all public and private entities required in the 26 to 33 county area, to implement the Zero Waste Strategic Plan.

The ILA is the recommended mechanism by the Solid Waste Advisory Commission, Solid Waste Management Districts Subcommittee to implement the Zero Waste Strategic Plan within the 26 to 33 county area.

Council of Governments

A Council of Governments (COG) is defined by the Capital Area Council of Governments as a “... voluntary association[s] of counties, cities, and special districts formed under Texas law. These associations deal with the problems and planning needs that cross the boundaries of individual local governments or that require regional attention.” Although known by several different names, including council of governments, regional planning commissions, associations of governments and area councils, they are most commonly referred to as “COGs”. A COG can adopt a Solid Waste Plan, but it is up to the individual entities within the boundaries of the COG to implement the Solid Waste Plan. The State Legislature can enable a COG to provide solid waste management services in

the same manner as a SWMD. To implement the Zero Waste Strategic Plan, the existing COGs across the 26 to 33 affected counties would have to act in a coordinated fashion, probably through an ILA.

The Texas Regional Council of Government provides Solid Waste Management planning and resources for the local governments within the COGs. Regional COGs are tasked to review “applications” for solid waste facilities and state whether they conform with the Regional Solid Waste Plan. However, none of the COGs provide solid waste management services at this time.

Authority or Process

The authority of a COG to provide solid waste management services, beyond developing a solid waste master plan, might require enabling legislation by the State Legislature. If the COGs are authorized to provide solid waste management services, the COGs within the 26 to 33 county area could join into an ILA-type agreement to provide integrated services.

Advantages and Disadvantages

It is not definite that the COGs within the 26 to 33 county area have the authority to implement the Zero Waste Strategic Plan. No single COG encompasses the 26 to 33 county area; the COGs would have to be united through a mechanism such as an ILA to provide solid waste management services on a regional basis. In general, COGs are organized for planning functions and are not organized to provide or have the infrastructure to provide solid waste management services.

Additional Mechanisms for Regional Cooperation

The project team identified three additional mechanisms for regional cooperation:

- Informal Regional Coalition as a Mechanism for Regional Cooperation
- Formation of a New Non-Profit Agency as a Mechanism for Regional Cooperation
- Federal and State Grants used as Mechanisms for Regional Cooperation

Informal Regional Coalition as a Mechanism for Regional Cooperation

Bay Area Recycling Outreach Coalition

Communities can band together for a specific purpose and informally cooperate on projects of mutual interest. The Bay Area Recycling Outreach Coalition (BayROC) is a good example of this. The organization was formed as a campaign, “Save Money and the Environment Too.” The campaign is a unique partnership that combines the efforts of 110 cities and counties in a nine-county Bay Area region with more than 400 supermarkets. The goal of the campaign is to educate consumers on the first two steps of the popular phrase: reduce, reuse, and recycle.

This campaign was launched in 1995 at a meeting of city and county representatives convened by the City and County of San Francisco. The campaign was aided immensely by a \$150,000 grant from the California Integrated Waste Management Board. The working group was recruited at a meeting of city and county recycling staff called together to discuss potential regional campaigns in the nine-county San Francisco Bay Area.

Now in its 15th year of activity, the focus of the BayROC has evolved to include regional outreach and advertising promoting additional campaigns including: Buy Recycled Paper; Stop Junk Mail; Bring Your Own Bag, Used Oil Recycling; and Food Scraps Recycling. Through regional media campaigns, BayROC promotes personal action and behavior change to reduce waste. Its success has grown from year to year and continues to serve San Francisco Bay Area jurisdictions and residents by providing information and promoting personal action to reduce waste.

Northwest Product Stewardship Council

The Northwest Product Stewardship Council (NWPSC) is an example of a coalition of governments that operates as an unincorporated association of members. The mission of the NWPSC is to work together and with other governments, businesses and nonprofit groups to integrate product stewardship (producer responsibility) principles into the policy and economic structures of the Pacific Northwest.

The Council is working to shift Washington and Oregon's product waste management system from one focused on government funded and ratepayer financed waste disposal and waste diversion to one that relies on producer responsibility in order to reduce public costs, increase accessibility to services, attain higher environmental benefits and drive improvements in product design that promote environmental sustainability.

The NWPSC currently operates as an unincorporated association of members and has no formal legal organizational structure. Members of the Steering Committee are representatives of government agencies that provide funding and/or staff time to NWPSC product stewardship activities and projects. Each agency signs a Letter of Agreement, provides one official representative to the Steering Committee, and receives one vote for decision-making purposes. Membership in the Steering Committee is limited to 15 people. Voting members are accepted at the beginning of each year and are added to the formal list of members in the Letter of Agreement. Associates are local, state, regional, and federal governments and agencies, government and other associations, businesses and nonprofit groups that support the NWPSC mission and product stewardship principles. Associates have access to a NWPSC list serve discussion group and can participate in any of the subcommittee projects and programs.

Texas Product Stewardship Council

The organization of the Texas Product Stewardship Council (TXPSC) is modeled on the NWSPC. Members of the TXPSC Steering Committee are general council members that make up the voting member body of the Council. Members of the Steering Committee provide funding and/or staff time to TXPSC activities and projects and commit staff time to attend TXPSC meetings. The Letter of Agreement outlines the Council's mission, objectives, and gives a more detailed explanation of the Council. Membership on the Steering Committee is subject to approval. TXPSC Partners are local, state, regional, and federal government agencies, businesses, and nonprofit groups and other associations that support the TXPSC mission and product stewardship principles. Partners can participate in any of the subcommittee projects and programs. The TXPSC was formed to shift Texas' product waste management system from one focused on government funded and ratepayer financed waste diversion to one that relies on producer responsibility in order to reduce public costs

and drive improvements in product design that promote environmental sustainability. The TXPSC works to integrate the principles of product stewardship into the policy and economic structures of Texas. The TXPSC is an organization of local governments that work with State government, waste and recycling companies, water quality organizations, businesses of all types, non-profit organizations and product consumers to reduce waste and bring good public policy to the materials management industry.

GLOW Region Solid Waste Management Committee

The GLOW region solid waste management committee was formed through and named after a cooperation of four counties in western New York State (Genesee, Livingston, Orleans and Wyoming Counties). GLOW actively runs a variety of programs and awareness initiatives such as Mat-Ex. This program is a reuse materials program providing a means of disposing of surplus materials for local businesses, Government agencies, and institutions. Mat-Ex allows parties to dispose of materials that would otherwise go to the landfill, while providing a means of obtaining free or inexpensive materials donated by other parties. The regulations are that no hazardous materials are to be included and there is to be no commercial gain by any party.

GLOW's compost initiative program promotes the awareness that an estimated 17 percent of landfilled waste is food and yard waste. Located at state and county parks, GLOW actively maintains three Backyard Composting Education Demonstration sites with the aid of the county and state park managements. At each site are signs displaying how-to compost information next to the list of pictures of 10-11 homemade composters, and a "take one" compost kit including plans and more information.

GLOW's participates in many of the Earth-day programs and fairs, and is a presence in recycle rallies along with the other recycling organizations of the state. GLOW's staff also provides community and school presentations administering 38 presentations in 2009. These presentations are given with examples and learning tools such as a compost cross-section and various items made from recycled material.

GLOW is an inter-county cooperation agreement that is renewed every two years. GLOW is predominantly funded by the participating counties (amount based upon county population) along with state and federal grants. Committee is made up of four representatives from each county for a total of 16, and the committee meets six times this year. The Agreement allows for GLOW to create its own subcommittees. GLOW currently maintains a Planning Committee to efficiently coordinate GLOW's administrative duties and an Advisory Committee. The Advisory Committee Members are consisted of local officials, private citizens, and GLOW members.

Staff includes a full-time administrator, with clerical duties that are handled by staff from one of the participating counties. Services are provided on an hourly basis and invoiced quarterly.

Formation of a New Non-Profit Agency as a Mechanism for Regional Cooperation

California Product Stewardship Council

The California Product Stewardship Council (CPSC) is an example of local governments and other agencies coming together to form a new non-profit agency dedicated to a specific goal. The California Product Stewardship Council is a non-profit corporation supported by many local governments and government entities, business partners, and others who have pledged to support the CPSC Mission. The CPSC Mission is to shift California's product waste management system from one focused on government funded and ratepayer financed waste diversion to one that relies on producer responsibility in order to reduce public costs and drive improvements in product design that promote environmental sustainability. CPSC's goal is to align public and private sectors through information, advocacy, and legislation to ensure ongoing product responsibility. The CPSC is managed by a 10-member Board of Directors, representing local governments throughout the state. CPSC hires contract staff, including its executive director to represent its interests in education and legislative campaigns. CPSC is supported by 31 counties and 71 cities in California and receives funding from 90 public and private sector donors.

Envision Central Texas

Envision Central Texas (ECT) is a non-profit organization composed of a diverse group of citizens, including neighborhood, environmental, business leaders and policy makers, who share the common goal of addressing growth sensibly with the interests of the region's citizens in mind. In addition to the governing board of directors, ECT has a small full-time staff that manages daily activities to support the planning process.

ECT led the public development of a regional vision to address the growth of Bastrop, Caldwell, Hays, Travis and Williamson Counties. ECT currently assists regional planners and policy-makers with voluntary implementation strategies for working toward this common vision. It serves as a resource to the public and private sector on issues related to key growth trends, best practices, and innovative planning tools that support quality growth. ECT also convenes public forums and hosts educational events which engage a wide variety of people to discuss the challenges of growth and the opportunities to shape the region's future.

When the decision was made to develop a common vision for the Central Texas region, organizers placed an invitation to community, business, and government leaders from Bastrop, Caldwell, Hays, Travis and Williamson Counties to attend a meeting to discuss how the planning process might work. At this meeting, an eight-person committee was appointed to establish a non-profit corporation, a governing Board of Directors, and an Executive Committee. This original committee appealed to all aspects of diversity in forming the Board of Directors and Executive Committee. They sought to include every county, constituency, and vested interest group in the region. In 2005, ECT transitioned from visioning to implementation. Much of ECT's work is done through its Implementation Committees and Task Forces. ECT is funded through public agencies, corporations, and private donations.

Brazos Valley Solid Waste Management Agency

Brazos Valley Solid Waste Management Agency (BVSWMMA) is a non-profit agency created by the cities of Bryan and College Station Texas that operates the rock prairie road landfill and initiates regional cooperation with programs such as the BVSWMMA “News from the Pile” newsletter printed quarterly with roughly 250 printings containing news of recycling events and schedules, advertisement for the BVSWMMA Master Composting Training Program, and a class graduation list of those who have completed the program.

The BVSWMMA board of directors is made up of seven representatives, three representatives from each of the two cities who then vote on and elect the seventh. BVSWMMA is staffed by 30 employees, 28 of which work at the landfill and two who instruct the composting program and compose the BVSWMMA newsletter. Non-profit agencies such as BVSWMMA are typically created by a mutual agreement among the boards of the participating groups.

Federal and State Grants used as Mechanisms for Regional Cooperation

The U.S. EPA, Department of Energy and Department of Labor encourage partnerships and cooperation on federal grants. In fact the Northwest Product Stewardship Council was formed by the communities in the Pacific Northwest as a result of an EPA grant. In Texas, the solid waste programs of the Council of Governments are funded through Texas Commission on Environmental Quality grants to the Texas Association of Regional Councils.

North Central Texas Council of Governments Solid Waste Program

The North Central Texas Council of Governments (NCTCOG) is a voluntary alliance of local governments in the Dallas-Fort Worth region and currently is joined by 230 governments in the region including, 16 counties, school districts, special districts, and numerous municipalities. NCTCOG’s solid waste management program includes many of the programs that CAPCOG does in the Austin area, including recycling drop-off locations and education outreach. NCTCOG also piloted a yard waste collection project in the City of McKinney with the consideration that a full-time yard waste diversion program might occur.

NCTCOG promotes awareness of the problem of illegal dumping in the region. Many of the counties and cities have participated including actions such as bi-lingual brochures, newspaper ads, broadcasts on bi-lingual stations, and “No Dumping” signs placed around common dump-prone sites.

NCTCOG offers a unique program of loaning surveillance systems to local governments for use in stopping illegal dumping. Surveillance systems are offered for 4-6 month terms, adjusted for the needs of the particular local government.

Funding for NCTCOG’s waste management programs is received from the Texas Commission on Environmental Quality grants to the Texas Association of Regional Councils.

Orange County Workforce Investment Board

The Orange County Workforce Investment Board (OCWIB) recently received grant funding from the Department of Labor. One of the pieces of the grant was to train workers in recycling through their Orange County Green Jobs Corps. Recycling training is included in this grant. In Partnership with the Orange County, California, Board of Supervisors, the OCWIB oversees Orange County's workforce development activities and establishes programs in response to the workforce needs of Orange County. The OCWIB designs and implements programs and services for business, adults, youth, and dislocated workers in accordance with its 5-year Strategic Local Plan. The Orange County Green Jobs Corps will train youth and young adults (ages 16 to 24) for a variety of green careers in eco-friendly industries and contribute as volunteers to create greener communities. Corps members will receive pre-employment, work maturity and life skills training and will participate in specialized education programs on civic responsibility and environmental stewardship.

Functions Appropriate for Regionalization

Austin is part of a regional waste management system within the CAPCOG region. The City is also a part of the greater Central Texas region and between 26 and 33 counties contribute waste to local area landfills.

While the City is able to provide comprehensive waste prevention, recycling and composting programs and infrastructure to its residential and commercial customers on its own, the City can benefit from regional cooperation in several areas. Functions that are appropriate for regionalization include:

- Regional planning
- Program implementation
- Facility implementation
- Outreach and education
- Advocacy
- Research and development
- Economic development

The following table lists these functions and the regional mechanisms best suited for this function.

Function	Appropriate Regional Mechanism	Rationale	Example
Regional planning	COG or ILA	ILA for areas larger than COGs	CAPCOG NCTCOG
Program implementation	ILA	Flexible, but binding on signatories	Fort Worth ILA
Facility implementation	SWMD, ILA or Non-Profit	Bonding capability, commitment of materials	North Texas Municipal Water District BVSWMA

Outreach and education	Coalition	Flexible, informal	BayROC GLOW
Advocacy	Coalition or Non-Profit	Flexible, informal	TXPSC Envision Central Texas
Research and development	University or Non-Profit	Grant funding opportunities	UT Zero Waste Center Chelsea Center Syracuse Center
Economic development	Coalition or Non-Profit	Grant funding opportunities	Institute for Local Self-Reliance

The City must carefully consider what policies, programs and facilities identified in the *ISWMMMP* are appropriate for regional cooperation.

Interlocal agreements are designed to allow communities to coordinate planning and take advantage of economies of scale. This allows smaller communities to obtain services and participate in decision-making on projects that are beyond their capital expenditure capabilities. Larger communities can also benefit because larger service areas or facilities can be more efficient than smaller ones. A disadvantage of any long-term agreement is the need to make the agreement functional for a long period of time and fair and equitable between the parties. Issues that arise when negotiating interlocal agreements include:

- **Membership** – Should the representatives on the governing body be staff of the member agencies or elected officials? Staff representatives often have technical expertise and insights on operating and financial issues. However, elected officials are sometimes better able to champion policy issues and projects and gain support of their fellow council members.
- **Voting** – Should every member agency have the same voting rights or should larger member agencies or those providing more assets to the project have more control over decision-making? It is common for regional organizations to have weighted voting for larger member agencies.
- **Staffing** – Should the organization be staffed by one of the member agencies or should the staff be independent? It is sometimes difficult for member agency staff to “wear two hats”, as staff to a member agency and staff to a regional body. However, having an independently staffed organization can be logistically difficult and costly, as the organization must provide for payroll, human resources, accounting, and other administrative functions.
- **Funding** – What is the best way to pay for the regional organization? Will it be funded through facility user fees? Contributions from the member agencies? Some organizations that have based their funding on landfill tipping fees are now experiencing the “death spiral” of funding, since the more waste that is diverted from disposal, the less funding the organization receives.

Participating in a regional organization can be advantageous for the City, but forming a regional organization and staffing the agency can be time-consuming and difficult. The City may also want to pursue more aggressive policies and programs that may not be supported by other member agencies.

Therefore, the City must proceed cautiously in reaching out to form a regional organization to ensure that the goals of the regional organization and its member agencies are in alignment.

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Appendix A – Local Manufacturer Surveys

- ACCO Waste Paper of Austin
- Coca Cola Bottling Co.
- Cycled Plastics
- Dell Computers
- Fuquay, Inc.
- Image MicroSystems
- JOSCO Products
- Old Texas Floors
- Vintage Material Supply Co.

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ACCO Waste Paper of Austin

Address: 10420 Metric Boulevard, Austin, Texas 78758

Contact person: Mr. Matt Myers, Recycling Consultant

E-mail: mmyers@republicservices.com <http://www.republicservices.com>

Phone number: (512) 385-7600

Description

ACCO Waste Paper of Austin (ACCO) — ACCO, a leading waste services company, provides collection, recycling and disposal services to residential, commercial, and industrial customers in the United States. The company operates three facilities in the Austin area. ACCO offers assistance to small, medium, and large commercial customers in the Round Rock area.

The Austin material recovery facilities accept materials where metal, glass, plastic, and paper are sorted, processed and shipped to manufacturers for further recycling or reuse. One Austin area destination of a number of their materials is Cycled Plastics. Sample materials and their end-uses are milk jugs reused as diaper bags, PET plastics into carpet padding, and cardboard into corrugated or boxboard (for use in beverage containers).

Targeted Materials

The following list is a summary of items accepted and not accepted under the program:

Acceptable Items in Office Complex Mix:

- Corrugated cardboard
- Computer printouts
- Printed white and colored papers (pen and pencil marks are acceptable)
- Clean room paper
- Notebook paper
- Adding machine paper
- File folders (manila, white or pastel colored)
- Carbonless paper and forms, including NCR paper
- Self-adhesive notes
- Card stock (manila or colored)
- Fax paper
- Newspapers and magazines
- Junk mail
- Soft cover books with white pages
- Aluminum cans
- Plastic PET water, soda or beverage containers (look for the #1 in the recycling triangle)

Unacceptable Items:

- Metal or plastic spiral bound books
- Kitchen and food waste such as paper plates, cups and food wrappers
- Paper towels and tissues
- Carbon paper
- Tear resistant paper such as flimsy Federal Express envelopes
- Water resistant paper such as copy paper wrappers
- Hanging folders such as brown and green Pendaflex folders
- Pressure sensitive adhesive (crack and peel labels)
- Hanging folders such as brown and green Pendaflex folders
- Pressure sensitive adhesive (crack and peel labels)

Diversion Potential

Currently, ACCO receives 2,000 tons per month at its north Austin facility, and can increase to 6,000 tons per month.

Tip Fee/Price

ACCO charges fees for collection of materials that vary based on the type and quantity of that material. In some instances, ACCO pays for the materials such as large volumes of high grade papers.

Expansion Plans/Opportunities

ACCO in Austin has no plans to develop a manufacturing plant in the region.

Coca-Cola Bottling Co.

Address: 9600 Burnet Road, Austin, Texas 78758-5214 (512) 836-7272

Contact person: Larry Clawson

E-mail: sustainability@na.ko.com

Phone number: (512) 836-7272

Coca-Cola is ceasing bottling operations in the Austin area and will only be maintaining a warehouse in Austin. However, the company indicates it is investing in more recycled content for its bottles and will be a purchaser of recycled PET in the San Antonio area. Described below are the company's corporate goals for increasing the sustainability of its packaging.

Description

The Coca-Cola Company and its bottling partners indicate they are committed to making a lasting, positive difference in the world. The company is constantly innovating to keep its products affordable and to make its business more environmentally and economically beneficial to the communities it serves. Coca-Cola believes that investing in the economic, environmental, and social development of communities will help its business grow.

Live Positively is Coca-Cola's commitment to make a positive difference in the world by redesigning the way they work and live so sustainability is part of everything they do.

Global Sustainability— Sustainable Packaging

Coca-Cola envisions a world in which its packaging is seen as a valuable resource for future use. Coca-Cola indicates it is making this vision a reality by creating value at every stage of its packaging lifecycle, through efforts to reduce, recover, and reuse.

Reduce — Coca-Cola is continually exploring new ways to optimize the amount of material and energy it uses in its packaging. Since the introduction of all its major packages, they've significantly reduced the materials used to make them, without sacrificing quality.

Recover — Approximately 85% of Coca-Cola's unit case volume today is delivered in recyclable bottles and cans. The recovery of these containers and their materials for reuse is critical to Coca-Cola's sustainability aspirations. The company's target is to recover directly 50% of the equivalent bottles and cans sold worldwide.

Reuse — Coca-Cola is helping to foster demand for recovered materials because of its increased use of recycled content in its packages. Coca-Cola is also purchasing products that are made from recycled beverage packaging and enhancing the efficiency of its refillable bottles.

Reuse — Coca-Cola is working to advance technologies that allow it to use greater amounts of recycled materials in its packaging.

Community Recovery & Recycling Efforts

Coca-Cola has invested in an innovative recycling incentive company called RecycleBank. The program rewards consumers for recycling and has according to Coca-Cola, demonstrated an average of 30-50 percent increase in curbside recycling rates. See the website at:

<http://www.recyclebank.com/>

Eleven US states (NY, IA, CT, MI, VT, DE, HI, OR, MA, ME, and CA) have some form of container deposit program mandating a range of responsibilities including labeling, collecting and processing empty containers and fee payments. Seven US states (WA, VA, NJ, NE, TN, RI, and OH) have some form of business tax on beverage sales to support litter or recycling programs.

Cans and Bottles

Coca-Cola indicates more than half of the metal in Coca-Cola's aluminum cans is recycled. Since introducing the first-ever beverage container with recycled PET in 1991, they have continued to invest significant dollars in development of environmentally and economically viable recycling technologies. Today, Coca-Cola indicates they lead the industry in the innovative use of recycled plastic.

The Coca-Cola Company is using recycled content PET in more than 17 markets around the world. Recycling plastic for reuse yields financial benefits, requires less energy than producing bottles with virgin materials, and reduces waste and greenhouse gases.

Bottle Caps

Coca Cola indicates that the closures Coca-Cola uses on bottles are 100 percent recyclable from a technical standpoint and highly recycled. They are made from high-density materials selected for their compatibility with most recycling systems. Most recyclers use a float/sink process where PET bottles sink and the closures and labels float. For this reason, and to minimize litter, Coca-Cola recommends that consumers recycle their beverage bottles by putting the cap back on before placing in a recycle bin. Like the PET plastic used in their bottles, there also are end markets for the material used in the caps, such as paint pails and battery casings.

Recycling Plants

Coca-Cola has also invested in building PET recycling plants that produce bottles from recycled content in Australia, Austria, Mexico, the Philippines, Switzerland, and the United States.

Their plant in the United States is the world's largest plastic bottle to bottle recycling plant with capacity to produce approximately 100 million pounds of food grade recycled PET plastic for reuse each year -- the equivalent of producing nearly 2 billion 20 ounce Coca-Cola bottles.

Coca-Cola's goals include:

- Improve packaging material efficiency per liter of product sold by 7 percent by 2015, compared with a 2008 baseline
- Recover 50 percent of the equivalent bottles and cans used by 2015
- Source 25 percent of our PET plastic from recycled material by 2015
- Recovered the equivalent of more than 35% of the bottles and cans sold by our system.

- Opened the world's largest PET4 bottle-to-bottle recycling plant in February 2009, which will produce PET plastic for reuse each year equivalent to 2 billion 20-ounce PET bottles.

SUSTAINABLE PACKAGING	2005	2006	2007	2008
Packaging use ratio (efficiency), ² defined as grams of material used ² per liter of product produced by ² the Coca-Cola system	N/A	46.3	50	51.9
Percent of equivalent bottles and ² cans sold by our system recovered through Coca-Cola system-supported recovery programs	N/A	35%	36%	N/A
Company Global Packaging ² Quality Index rating (out of 100)	88	89.2	90.4	91.2

The Coca-Cola Value Cycle

The Coca-Cola system operates in the context of a broader value cycle. It works with others to source ingredients, create packaging, sell products, recover and reuse packaging materials, and replenish the water that it uses. Managing sustainability through a complex business cycle can be challenging. By collaborating closely with its business partners, communities and consumers, Coca-Cola seeks to ensure environmental and social responsibility and is working to encourage consumers to recycle the packaging materials associated with its products. Coca-Cola aims to eliminate all waste over the life of its packaging through efforts to reduce, recover and reuse materials, and conserve resources.

Packaging Vision - Sustainable Packaging

The value of packaging is often seen as a paradox. Packaging plays an essential role in meeting consumer needs and preventing waste by effectively protecting products during delivery. However, once emptied, many consider packaging to be a wasteful and burdensome problem. Coca-Cola is actively working throughout the Coca-Cola system to create solutions by advancing a global sustainable packaging strategy aimed at preventing waste over the life of its packaging.

Coca-Cola believes waste prevention extends beyond simply reducing packaging material. Its focus is on eliminating all raw materials, energy, and water losses across the entire packaging process chain—from the initial resources used to make a package through to the consumer and beyond.

At the foundation of Coca-Cola's strategy is a commitment to measuring performance as well as using sound science to drive continuous improvement. For the past five years, the company has worked to create a system-wide tracking tool to enable them to better monitor, measure, and share

its global packaging use and innovations. Coca-Cola has also continued to build on our 40-year legacy of using lifecycle assessment research for guiding decisions and setting performance targets.

Today Coca-Cola's packaging goals focus on four priority areas for effectively preventing waste:

- Optimizing packaging efficiency;
- Increasing renewable resource use;
- Recovering packages for reuse; and
- Increasing recycled material use.

In 2008, Coca-Cola Mexico launched a new Ciel® 600-mL PET bottle—the lightest-weight bottle of its kind in Mexico—reducing PET material use by 43 percent.

“Give It Back™” is Coca-Cola's marketing campaign to remind consumers that Coca-Cola bottles and cans are valuable resources to recycle. Coca-Cola's television advertisement promoting recycling debuted on the 2009 season premiere of American Idol in the United States, reaching an estimated 30 million viewers. The campaign produced nearly 1 billion impressions in 2009 and is rolling out in international markets.

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Cycled Plastics

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Contact person: Mike Largent

E-mail: mike@cycledplastics.com

Phone number: (512) 339-8787

Description

Cycled Plastics (CP) specializes in the recycling of foam packaging plastics such as EPS, PP, PE, and PUR foams. Cycled Plastics can shred, grind, wash, and re-pelletize scrap back into a clean, consistent raw material supply.

Targeted Materials

In addition to foam recycling, CP currently recycles the following types of plastic typically collected mostly from industrial resources:

- LDPE (Low Density Polyethylene)
- HDPE (High Density Polyethylene)
- PP (Polypropylene)
- PS (Polystyrene)
- PET (Polyester)
- PVC (Polyvinyl chloride)
- ABS (Acrylonitrile Butadiene Styrene)
- PC (Polycarbonate)
- Engineering Grade Plastics

CP maintains a public drop-point at its facility in Austin. The following items are accepted Monday through Friday, 7am - 5pm:

- Packaging Foams free of dirt or food contamination (EPS #6, PP #5, LDPE #4)
- #2 HDPE curbside bottles that have been rinsed with caps removed
- #1 PET curbside bottles that have been rinsed with the caps removed
- #2 HDPE flower pots that have been lightly washed to remove most of the dirt
- #4 LDPE bags that have had no food contact and have no paper contamination (labels, stickers)

Diversion Potential

While CP processes most of the materials collected internally, some are shipped elsewhere for processing. One such example is PET bottles that CP bales and sells for final processing. Another example is plastic bottles of different varieties collected by municipalities. This source has more than doubled since January 2010.

CP is currently picking up dry cleaning plastic bags from large dry cleaning operations on a trial basis, if these bags are collected at a single pick-up point. A CP employee in a pickup truck collects the bags. CP says this trial program may not work in larger scale as CP's typical material pick-ups are of a tractor-trailer scale, and dry cleaners bags will not be this voluminous.

Tip Fee/Price

The fee CP would pay for materials would vary by material. As the markets fluctuate CP cannot quote a price for specific materials at present.

CP may reimburse generators for materials if the materials are baled and not loose. Reimbursement will vary by materials. Prices vary over time.

Expansion Plans/Opportunities

CP could double its current processing capacity in Austin. CP processes up to two million pounds of materials per month at its Austin facility. Potential growth in Austin would depend on the type of materials available for processing.

CP states that there are not many wood pallet recycling opportunities. CP currently gives away its wood pallets to a company in San Antonio, Castillo Pallet. CP delivers them to Castillo Pallet in its own trucks when these trucks pick up materials in San Antonio. The trucks deliver the pallets and then bring back materials for recycling. Castillo Pallet accepts broken pallets along with the serviceable ones. In some instances, these pallets are purchased locally from CP by companies. Wooden pallets are mulched by some municipalities. CP is not sure that recycling pallets is a financially viable business. It may require a public subsidy to achieve a high degree of recycling of the material.

Dell Computers

Description

Dell's environmental responsibility vision is: Aspiring to be the greenest technology company on the planet. June 2009 marked the second anniversary of Dell's announcement that Dell aspires to be the greenest technology company on the planet. Working with customers and suppliers, Dell has achieved milestones centering on reducing greenhouse gas emissions from its operations, improving energy efficiency of products, making it easy for customers to recycle Dell systems, moving to green energy sources at the corporate headquarters, and introducing packaging made of renewable material.

Targeted Materials

Dell will recycle a Dell™ branded system at any time at no charge, and will recycle any brand of computer for free with the purchase of a new Dell computer.

Through its Dell Exchange program, Dell will accept PC and Apple desktops and laptops, servers, computer monitors, SLR and point and shoot digital cameras, camcorders, multi-media projectors, home and car audio receivers, game systems, mobile phones, PDAs or hand held computers, Apple iPods, GPS navigation devices, video games, and external hard drives.

Recycling for Business

Dell offers free computer recycling for individuals and businesses worldwide. It will recycle a Dell™ branded system at any time at no charge, and will recycle any brand of computer for free with the purchase of a new Dell computer.

Dell helps customers resell, recycle or return computer equipment in a secure and environmentally conscious manner that complies with local regulatory guidelines. Dell has proven performance in recycling excess equipment. From fiscal year 2004 to fiscal year 2009, Dell recovered 275 million pounds of computer equipment worldwide.

Solutions to Achieving Environmental Responsibility

IT Asset Recycling

Dell handles the logistics of properly disposing equipment in an environmentally sensitive way. During the recycling process, IT components are broken down into primary parts with materials separated into groups of ferrous metals, precious metals, and plastics. Once divided, these materials are then sent to specific partners who specialize in the disposal of each unique material.

IT Asset Resale

Dell will pick up customers' systems at the customers' designated locations, ship them to its facilities and evaluate the equipment to determine its value. Equipment without residual value will be recycled. For assets that may have value, Dell can help resell your equipment. This service offers a choice between the following data security options:

Resale with off-site data wipe

Dell performs a three-pass data wipe overwriting the data, and in the case of non-functional hard drives, destroys the hard drives in a controlled secure environment.

IT Asset Lease Return

Dell can manage the logistics and processing of equipment for return to the leasing vendor. One can choose from the following three options:

- **Transportation only** — Dell comes to the customer's site, packs the equipment and ships it back to the leasing company.
- **Off-site data wipe** — Dell comes to the customer's site, packs the equipment and ships it to its processing center, where the data is wiped from the hard drives. Then, the equipment is clean and tested. After fully processing the equipment, Dell ships it back to the customer's leasing company.
- **On-site data wipe** — In addition to packing and shipping, Dell comes to the customer's site and performs a three-pass data wipe of the system's seated hard drives before the equipment leaves the customer's facilities.

Dell Exchange

Dell offers this program as credit toward a customer's next Dell purchase. Unwanted PCs, mobile phones, digital cameras, and MP3 Players can be converted into Dell.com Gift Cards. On the Dell website, a customer selects an item category, inputs the required information and receives an instant trade-in estimate. After accepting the quote, one registers for a trade-in account and agrees to the Dell Exchange program. At this point the customer prints a prepaid shipping label and ships the items to Dell's trade-in warehouse. The receipt of the traded item(s) will be confirmed via email. Once inspected, the customer will receive a subsequent email confirming the trade-in value. A Dell Gift Card will be received by the customer by mail in about two to three weeks after the item is received and is accepted at the trade-in center.

Free At-Home Pickup

Dell makes recycling a simple and easy process for customers by partnering with FedEx to offer an at-home pickup program. Dell will have FedEx pick up any Dell™ product for free anywhere in the U.S. via FedEx's Package Return Program. The customer first locates the equipment's unique identification number. The customer then completes the Online Waybill form to get the free shipping label. Dell points out that for all Dell branded electronic equipment, other than printer, ink and toner, it has one recycling procedure, and a second procedure for printer, ink, and toner. The directions provide packing instructions. Dell does not provide packaging materials. After printing the Waybill label and affixing it to the package, the customer calls FedEx to schedule the pick-up.

Recycling in Partnership with Goodwill Industries — Dell + Goodwill = Reconnect

Customers can donate any brand of used computer equipment to Reconnect — a partnership between Dell and Goodwill Industries. Donations help provide technology, education, training, and career services to people facing economic challenges. It is a free, convenient, and tax-deductible way of de-cluttering home offices while helping others.

As of April 2010, Microsoft teamed up with Dell and Goodwill to offer product recycling through the Reconnect program. In addition to collecting PCs and computer accessories, the 1,900-plus Goodwill locations participating in Reconnect now collect Microsoft® entertainment products including, Xbox®, Zune® and accompanying accessories for free recycling. Goodwill has a network of stores and donation centers, plus years of experience with accepting used goods. Working together, Goodwill and Dell make free computer recycling readily available and increase awareness of the importance of responsible recycling.

About Reconnect and Goodwill

The first Reconnect program was started in Austin, Texas, in 2004. Reconnect is managed by Dell and Goodwill Industries, and is available to consumers in many markets across the U.S. and is expanding. As of spring 2010, the program is available in select communities in Canada.

Goodwill generates opportunities for people to achieve economic stability and build strong families and vibrant communities by offering job training, employment placement services, and other community-based programs for people who have disabilities, lack education or job experience, or face employment challenges. In 2008, Goodwill provided employment training, job placement services and other community-based services to 1.5 million people.

How It Works

Customers follow the following procedures to use the Reconnect program:

1. Review the “Items We Accept” website to ensure that the item is accepted. Reconnect accepts any brand of consumer computer equipment and most peripherals, in any condition, for free recycling.
2. Find a drop-off location using the “[Find a Location](#)” program feature. If there is not a location nearby, the customer can contact Dell to find an alternative.
3. Drop off the item — most items can simply be dropped off at any participating Goodwill branch.

The program does not export waste or send any environmentally sensitive material to landfills. In addition, Reconnect meets both Goodwill and Dell high standards for workplace and environmental safety. A third party audits all collection and recycling practices to ensure all standards are met.

Recycle Dell Equipment for Free at Staples

Staples offers a free in-store recycling program for Dell customers. Simply take a Dell computer, printer, monitor or peripheral items to one of Staples’ 1,500 U.S. locations.

Recycling Laptop Batteries

Dell partners with Call2Recycle® of the Rechargeable Battery Recycling Corporation (RBRC) for proper battery disposal. The customer can find one of more than 30,000 recycling drop-off locations in the nation by visiting the website <http://www.call2recycle.org/>. Call2Recycle is the only free rechargeable battery and cell phone collection program in North America. Locations include participating Wal-Mart, Lowe’s, Home Depot and Target stores among many others.

National Cristina Foundation (NCF)

Customers can donate used computers, software, peripherals and other business technology to local NCF locations. Individual or small businesses can drop off equipment at a location or schedule a pick-up. As a customer reward for participating, Dell provides a 10 percent discount on the customer's next online software or accessories purchase for the home.

Diversion Potential

Dell and its partners appear prepared to increase the capacity of their recycling programs without limits.

Tip Fee/Price

Dell will recycle a Dell™ branded system at any time at no charge, and will recycle any brand of computer for free with the purchase of a new Dell computer.

Expansion Plans/Opportunities

Dell and its partners appear prepared to increase the capacity of their recycling programs without limits.

DRAFT

Fuquay, Inc.

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Contact person: Mr. Dauphen Jackson, in Austin Office

E-mail: dauphenj@fuquay.com

Phone number: Austin Office (512) 260-9899

Description

Fuquay, Inc. is a leader in the fields of: construction site preparation, environmental compliance installations, infrastructure rehabilitation, underground utility construction, and road and concrete construction. Fuquay, Inc. consults, designs, installs and sells products and materials for “do it yourself” (DIY) projects.

Fuquay, Inc. manufactures and installs its own brand of erosion control materials, including American Fiber[™] Hydro-mulch. They are a licensed, certified installer of: SprayRoq[™] Spraywall spray-on pipe lining and Reline America Blu Tek[™] CIPP lining

Both are no-dig pipe rehabilitation options.

Targeted Materials

American Fiber[™] is Fuquay’s trade name for its proprietary recipe hydro-mulch product. Hydro-mulching is a planting process that uses a slurry of seed and cellulose fiber mulch. Depending on the application, the slurry often includes other ingredients such as fertilizer, soil stabilization agents, green dye and other additives.

It is transported in a tank and sprayed over prepared ground in a uniform layer. This process is used to introduce fast-growing vegetation to new construction areas, on recently disturbed ground, and on burned wilderness areas after a wildfire.

Hydro-mulching is an alternative to the traditional process of “broadcasting” or sowing dry seed. The mulch in the hydro-seed mixture helps maintain the moisture level of the seed and seedlings, and promotes quick germination and inhibits soil erosion.

American Fiber mulch is manufactured from clean newsprint and contains no stray plastic or metal shavings that might clog spray units.

Diversion Potential

Fuquay, Inc. currently is purchasing approximately 120,000 lbs. per month of clean newsprint to produce its hydro-mulching American Fiber. Its production fluctuates not only due to the national and state economy, but due to the weather. The drought of 2009 as well as the recent recession reduced the production level for the year by about 50 percent from prior years. During January and February 2010, the level of production was less than the year before due to the weak economy. The wet winter and spring seasons have increased demand so far this year, but Fuquay is having difficulty

buying paper because they were unable to program their purchases due to the uncertainties of the economy and weather. Balcones Resources is currently the only source of the clean newsprint, but they have purchased this raw material from other sources in the past.

Tip Fee/Price

The price for clean newsprint fluctuates from \$115 per ton to \$185 per ton.

Expansion Plans/Opportunities

The potential for expansion from the 2010 projected level of 144,000 lbs. of hydro-mulching is present, and the company is ready to take advantage of this opportunity.

DRAFT

Image MicroSystems (IM)

Address: 9800 Metric Blvd., Suite 300, Austin, Texas 78758

Contact person: Dan Adams, Plant Manager

Phone number: (512) 623-5644

Description

Image MicroSystems (IM) services in Austin include:

- Computer test/screening stations with PC burn racks, capable of 1,000 units per shift
- Fully automated assembly lines with real-time tracking status of products during the remanufacturing process
- Large volume HDD testing/re-imaging fiber channel technology
- Full electronic recycling capabilities with on-site destruction and volume reduction

Image MicroSystems pledges to be a steward of the environment by providing innovative end-of-life technology. IM offers a solution that merges end-of-life-cycle electronic equipment back into the environment or the manufacturing chain. All types of computer related electronics are recycled while complying with all regulations and laws concerning hazardous waste.

IM offers a full-range of computer-related services designed to solve issues regarding IT equipment. IM provides service parts for many computer brands. IM's remanufacturing capabilities offers to maximize the value and prolong the life of computer equipment. IM offers electronic recycling options to relieve companies from the burden of disposing of hazardous computer waste.

Processed systems and components are remarketed to resellers, service companies or back to the original owner. IM's distribution channels include multiple Internet storefronts, computer and electronic resellers, consumer direct, large companies, auctions and commercial brokerage arenas.

Range of services include (not limited to):

Remarketing Services – Offers OEMs and large company's services and programs for the processing and disposition of returned and excess computer systems, parts and components.

Technical Services – Includes remanufacturing, centralized depot repair, disk imaging, and disk erasures.

Spare Parts & Logistics – Provides spare parts and supporting logistic systems for service providers and resellers.

Electronics Recycling – Helps OEMs, resellers and large companies deal with the ongoing issues and regulations centered on disposing of unusable electronic parts.

Recycling – A reliable, affordable, and environmentally conscious partner for all recycling requirements.

Targeted Materials

Materials accepted are generally described as computers and peripherals. IM evaluates all computers and peripherals that arrive at the Austin facility for potential reuse or recycling. Components not feasible for reuse are disassembled. IM reuses the plastics to make pavers at its Austin facilities. IM also manufactures plastic “substrates” on which signs are painted. A current customer is TxDOT which uses these materials for highway signs. These products manufactured from the recycled materials are sold throughout the country and internationally.

Diversion Potential

The spokesperson interviewed could not give an estimate of volume of materials received by IM at its Austin facility, but did indicate that its source of materials is nationwide. Local sources have been the Texas Education Agency and the Austin Radiological Association. Other sources have been the City of San Antonio and the State of New York.

The spokesperson added that materials come in at different rates at different times of the year, and the incoming volume varies as the national economy varies.

Tip Fee/Price

IM evaluates all components received at its Austin facility. If there is a potential value in the components, a payment is negotiated with the source of the materials. If the components do not have refurbish potential, then IM charges for materials received by the pound; the spokesperson could not provide a value for that charge.

Expansion Plans/Opportunities

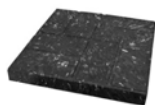
The IM is currently operating one shift at present, but can operate up to three shifts. If additional space is needed, IM rents additional space in other facilities. Should the business increase sufficiently, IM has the capability to move its entire operations to a single and larger facility in which it would consolidate all its operations, increased based on need.

IM lists on the following URL products produced from recycled plastic computer parts:

<http://www.greenrecycledplastics.com/catalog/index.php?osCsid=8n6ol0nifj5dr5hioqibqi7hm7>

Following are samples of the products:

[Black Stepping Stone Squares \(x1\) 16-1/8" X 16-1/8" 6lbs](#)



\$4.95

These attractive garden stepping stones are made of 100% recycled computer plastics. Made from shredded computer housings and obsolete ink cartridges, these 6 pound stepping stones are a fantastic replacement piece to a conventional path and wear like real stone plus they divert obsolete computers from ending up in the landfill. Color: Black Type: Square Tile Dimensions: 18"x18"x1.5" Weight: 6 Pounds ea.QTY: 1 Tile.

[Black Stepping Stone Squares \(x10\) 16-1/8" X 16-1/8" 6lbs](#)

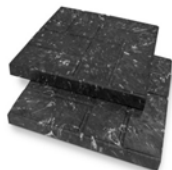


LOT of 10 TILES

\$39.95

These attractive garden stepping stones are made of 100% recycled computer plastics. Made from shredded computer housings and obsolete ink cartridges, these 6 pound stepping stones are a fantastic replacement piece to a conventional path and wear like real stone plus they divert obsolete computers from ending up in the landfill. Color: Black Type: Square Tile Dimensions: 18"x18"x1.5" Tile Weight: 6 Pounds ea.QTY: 10 Tiles.

[Black Stepping Stone Squares \(x50\) 16-1/8" X 16-1/8" 6lbs](#)



LOT of 50 TILES

\$194.95

These attractive garden stepping stones are made of 100% recycled computer plastics. Made from shredded computer housings and obsolete ink cartridges, these 6 pound stepping stones are a fantastic replacement piece to a conventional path and wear like real stone plus they divert obsolete computers from ending up in the landfill. Color: Black Type: Square Tile Dimensions: 18"x18"x1.5" Tile Weight: 6 Pounds ea.QTY: 50 Tiles.

[Black Stepping Stone Squares \(x100\) 16-1/8" X 16-1/8" 6lbs](#)

LOT of 100 TILES

\$394.95

Date Added: Wednesday 29 April, 2009 Manufacturer: Image Microsystems

These attractive garden stepping stones are made of 100% recycled computer plastics. Made from shredded computer housings and obsolete ink cartridges, these 6 pound stepping stones are a fantastic replacement piece to a conventional path and wear like real stone plus they divert obsolete computers from ending up in the landfill. Color: Black Type: Square Tile Dimensions: 18"x18"x1.5" Tile Weight: 6 Pounds ea.QTY: 100 Tiles.

DRAFT

JOSCO Products

Address: 900 Shelby Lane, Austin, Texas 78745

Contact person: Colleen Cole, CEO

E-mail: colleen@joscoproducts.com

Phone number: (512) 657-2128

Description

In 1980 JOSCO Products began selling products, including polishing rags, to the fiberglass reinforced products and cultured marble industry. JOSCO found there was a market for wiping rags in other industries, so it expanded the line of wiping rags produced from discarded clothing and other textiles. The source of discarded clothing and other textiles are hotels, thrift stores, hospitals, and linen supply companies.

Targeted Materials

JOSCO defines its manufacturing of wiping rags as “low-tech manufacturing” as the material is not reconstituted into new cloth. The “low-tech manufacturing” consists of separating the materials by material type, density, and color, and cutting the cloth into pieces as needed by each customer industry.

Diversion Potential

While JOSCO has no current plans to expand into other types of recycling initiatives, to JOSCO’s credit as a business, it is always seeking new avenues to sell its wiping rags.

JOSCO’s service area is Texas, generally from Waco on the north, Llano on the west, Corpus Christi on the south, and Houston on the east. It buys its wiping rag materials and also sells to customers in its service area. JOSCO adds that different purposes in each of its customers’ industries require different rag products. For example, painters require different wiping rags than do car mechanics—which demand the familiar red auto shop rags.

JOSCO sells approximately 150,000 pounds of wiping rags per month. The volume of sales varies along with the fluctuations of the local economy. For example, as the construction industry has slowed during the current economic slow-down, painting of buildings has slowed as well. This, in turn, has reduced the demand for wiping rags. As the local economy improves, JOSCO anticipates a return of the demand for its wiping rag products.

Tip Fee/Price

JOSCO buys different types of its “raw” products for sale as wiping rags. Prices vary for different materials from different sources. Sales per unit vary from \$0.25 to \$2.50 per pound depending on material and quantity.

Expansion Plans/Opportunities

While JOSCO has no current plans to expand into other types of recycling initiatives, to JOSCO's credit as a business, it is always seeking new avenues to sell its wiping rags.

JOSCO acknowledges its largest competitor for the red auto shop rags is Cintas, but the two firms maintain a symbiotic relationship as JOSCO also buys some of its raw products from Cintas. JOSCO has found that it has competition in the Houston metro area.

DRAFT

Old Texas Floors

Address: 4705 E 5th Street, Austin, Texas

Contact person: Lee Edwards

E-mail: Lee@OldTexasFloors.com

Phone number: (512) 694-1322

Description

Old Texas Floors sells reclaimed pine flooring, paneling, and beams for restaurants, bars, offices, and homes. They work primarily by custom orders, milling to the clients' exact specifications.

They buy salvaged wood and have it re-milled for customers, and buy flooring that is already re-milled. Occasionally, they carry reclaimed pine flooring that is in its original form. They carry pine wide plank flooring up to 11" wide.

Targeted Materials

The only material they accept is reclaimed wood, specifically reclaimed pine lumber or flooring in large quantities and good shape (especially longleaf pine) or reclaimed flooring of other species. At present they do not have the storage capacity to accept lumber of other species or miscellaneous salvaged construction materials. They are limited at present by their 1,500 square foot space that is frequently at 75 percent of capacity.

Longleaf pine is a species of Southern Yellow Pine that is treasured for its beauty, durability, rich grain lines, dark coloration and high sap content. It's also called "long leaf pine" and "antique heart pine." Their longleaf pine flooring is milled from the timbers of historic buildings in Texas and elsewhere that have been scheduled for demolition. They typically sell this heart pine flooring in a re-milled form, but reclaimed, antique heart pine flooring in its vintage form rather than re-milled is available in the following dimensions and prices (Price: \$6-\$14 per square foot. Price varies according to width and grade.):

- Width: 3"-11"
- Length: 3'-15'
- Thickness: 1/2"-1"
- Shape: tongue and groove flooring—tongue and groove sides
- Finish: unfinished

Southern Yellow Pine Flooring is reclaimed from the lumber of old Texas buildings and re-milled into tongue and groove flooring. Their Southern Yellow Pine flooring has many "character" marks that show the wood's history—original nail holes, occasional cracks and gouges, and knots and knot holes and an exciting variety of colors and grain patterns. This flooring provides the most visual variety of any of their products. Mixture of Southern Yellow Pine species—longleaf, loblolly and shortleaf, and occasionally a renegade from yet another species. Wood is not separated into grades, so the customer will get a range from Select grade to Cabin or Rustic grade. This wood is available in

the following dimensions and prices (Prices: \$3-\$4 per square foot. 10% coverage/extra material recommended):

- Width: 3” to 8”
- Length: 3’-10’, primarily 6’-8’
- Thickness: typically 5/8”; other thicknesses possible
- Shape: tongue and groove sides; usually stress relieved bottom
- Unfinished; beautiful finishing options are also available
- Available for free pickup in Dallas, TX and in Austin, TX

Diversion Potential

At present, they do not have the storage capacity to accept lumber of other species or miscellaneous salvaged construction materials.

Tip Fee/Price

Old pre-milled wood varies in price based on quality and quantity, and on whether the wood being sold is really what the seller claims it is. The owner buys flooring to sell as flooring. The face of the wood must be relatively refurbishable; that is, it should not have too many or too deep scratches. As flooring, its tongue and groove must not be broken. If the flooring material is intact and its face good, it carries a great value. All flooring must be cleared of nails, cleaned, and sanded. The business focuses primarily on longleaf pine, but the owner must remain flexible to provide customers what they are seeking, such as oak.

With respect to longleaf pine, the older the better, and therefore, the higher the price. Some sellers call longleaf pine when it is not. The owner’s experience requires him to set a cut-off date of 1920-1928 — anything built before then is longleaf pine; anything built later is not longleaf pine. The owner states that Austin does not have too many structures built before these years other than in the older parts of the City such as East Austin houses where he often finds houses built between 1905-1907, and the wood flooring from this housing stock is of high quality.

Expansion Plans/Opportunities

The business is growing, and its owner plans on expanding into a larger warehouse. The owner is aware of an ample supply of locally available materials that he is ready to give a second life. The business anticipates moving to larger facilities within one year.

Vintage Material Supply Co

Address: 730 Shady Lane, Austin, Texas 78702

Contact person: Ambrose Taylor

E-mail: info@vintagematerialsupply.com

Phone number: (512) 656-3336

Description

Vintage Material Supply Co. (VMS) reclaims and sells vintage timber and lumber, primarily old-growth longleaf pine, sinker pine, sinker cypress, and native Texas timbers. Its mission is to salvage all grades of wood for adaptive reuse as new products for residential and commercial building applications. VMS strives to use 100 percent of all sound reclaimed material.

VMS offers complete milling services, including re-sawing, flooring, and custom architectural and historical millwork. Applications may include (but are not limited to) post-and-beam structures, exposed trusses, doors, windows, stair treads, wall paneling, fireplace mantels, and custom furniture—both freestanding and built-in.

VMS also offers consulting services in vintage wood reclamation, and specialize in locating unusual wood items, such as old timber or log structures, for relocation and reassembly.

VMS is constantly upgrading our tools and equipment, as well as broadening its knowledge of the latest technology (they now own and operate a Computer Numeric Controller). VMS's goal is to provide its clients with the best possible service and a broad range of options for its projects.

VMS is now the exclusive distributor in Texas for Paperstone[®], a tough, state-of-the-art, ecology-friendly material made of 100-percent recycled paper and almond resin. It is bacteria-free and offers a virtually limitless number of applications for architectural and interior design. It beautifully complements old woods as well.

Targeted Materials

VMS's designers, artisans, and technicians provide custom woodworking products and services for architects, interior designers, other manufacturers, and individuals who require the finest craftsmanship in the finest materials. VMS can make almost anything you desire to create a distinctive environment, whether it be traditional or contemporary, residential or commercial, exterior or interior. Everything VMS manufactures is made to order, combining beautiful materials with environment-friendly production processes.

Our Products

- Virtually any style of custom cabinetry and casework you require, from traditional to contemporary, including the latest European looks
- Custom manufacture of any style of wood doors and windows, employing traditional joinery methods and your choice of finishes

- Custom interior moldings, trim, fireplace surrounds, and paneling for walls and ceilings; VMS also creates exterior wood components and architectural detailing
- Manufacture of custom wood flooring materials
- Manufacture and installation of complete staircases, or any component parts desired (treads, risers, balusters, newels, *et cetera*)
- Custom design and production of furniture, traditional or contemporary: tables, chairs, stools, benches, beds, bedside cabinets, desks, shelving units, wine storage facilities—whatever you require

Our Services

- Complete CNC machining services, including parts cutting for other manufacturers and suppliers
- Complete CNC carving services
- VMS specializes in unusual, rare, and vintage lumber and timbers, including: sinker pine, sinker cypress, old-growth bald yellow cypress, and reclaimed woods such as longleaf pine and Douglas fir. (Reclaimed woods typically come from old buildings being demolished.) Although VMS keeps some of these materials in stock, they usually make special purchases according to their customers' specifications.
- Complete sawmill and wood-drying kiln services
- VMS supplies "green" and eco-friendly materials, including bamboo plywood, an easily renewable resource.
- Offer Kirei (pronounced "Kee-ray") board, a new material made of agricultural fiber reclaimed from the sorghum plant. It is a strong, lightweight, durable, and environmentally friendly substitute for wood. Aesthetically pleasing as well, Kirei board can be used for a wide range of applications, including furniture, cabinetry, flooring, casework, and wall covering. With its low-VOC finishes, Kirei board helps reduce indoor air pollution. (<http://www.kireiusa.com>)
- VMS is the exclusive Texas distributor and custom fabricator for PaperStone Products® (www.paperstoneproducts.net), a versatile eco-friendly material that can be used for outdoor as well as indoor products and comes in a broad range of appealing colors.

Diversion Potential

While VMS is not able to quantify the increase in tons that it would be able to accept on an annual basis, they state that a great deal of demolition or deconstruction and tree-cutting is done in which the material is cut/ground and incinerated without gaining a benefit from the material. VMS stated that they could easily double their capacity, and later added that they could increase their operation ten-fold. The representative cited an example; the firm accepted, free of charge, 50 Pecan trees from the Shady Grove trailer park on Barton Spring Rd. in South Austin. Each tree weight was approximately 2,000 lb (1 ton), so he estimated 100 tons of material. On another job for College Station ISD, VMS is recycling 430 Post Oak trees. The company is currently taking Pecan trees from

Travis County from Onion Creek and recycling the material into benches for County parks into the park for benches.

Vintage Materials Supply Co. manufactures products out of wood, but does not use post-consumer materials.

Vintage Materials Supply Co. sells wood chips for horse-bedding – used in horse stalls. The price is very low, and the company suggests that a better use would be incineration for energy production.

Tip Fee/Price

It appears that the VMS's financial arrangements vary depending on the client. An example was that VMS got paid for taking down all of the trees on the site of the AT&T Communications Center on the UT campus in Austin and recycling the wood into furniture for the lobby (such as the concierge desk and other interior uses for the same facility).

Expansion Plans/Opportunities

The current facility in East Austin is a limiting factor in VMS's growth potential. They are in need of a larger "hauling yard" to store materials ready for recycling. The business has its own vacuum kiln on-site, but they need a larger one. The business owner states that the availability of logs in the City is enormous, and most trees are cut into firewood or ground up and burned. He estimates, roughly, that they are able to capture maybe less than 0.1% of available logs from within the City.

He suggests that the City's Parks and Recreation Department should make use of its dead trees for wood park infrastructure and park furniture if they could only cut, store, and dry the lumber. It appears that VMS could assist the Parks Department in such a task.

Appendix B – Local Contractor and Public Works Surveys

- City of Austin Public Works Department
- Jamail & Smith Construction
- Laughlin-Thyssen, Inc.
- Texas Department of Transportation

DRAFT

City of Austin - Public Works Department

Address: One Texas Center, Suite 900

Contact persons: Kalpana Sutaria, Project Management Supervisor; Peter Davis, LEED Project Manager; Clayton Craig, Project Coordinator

E-mail/Phone number: (512) 974-7225/kalpana.sutaria@ci.austin.tx.us; (512) 974-7267/peter.davis@ci.austin.tx.us; (512) 974-8776/clayton.craig@ci.austin.tx.us

Description

The City of Austin Public Works Department manages design-bid-build (DBB) projects involving the construction (by private contractors) of roadways, water lines, sewer lines, storm drain lines, pump stations, treatment plants, and buildings. Public Works manages the City's Capital Improvement Program projects through all phases of design, construction, and inspection. Projects range from the Austin City Hall to new swimming pools, fire stations, and libraries. Public Works also constructs in-house projects (IH) and maintains the City infrastructure with City crews and staff.

Describe the feedstock currently used in construction.

Concrete, steel, asphalt, aggregate, asphalt emulsion, lumber, and normal construction materials is used for streets, utilities, and buildings. If a building cost exceeds \$2 million, then LEED certification is required. The LEED certification includes the use of recycled materials and recycling waste products.

Targeted Materials for Use on New Construction

From the list of reclaimed/recycled materials below, determine which the contractor would be willing to accept and any requirements, such as restrictions on contamination.

Recycled concrete riprap – *Yes, they have used this material before. The specifications allow this material and as long as the specification is met, they would use it.*

Recycled flexible base – *Yes, they have used this material before. The specifications allow this material and as long as the specification is met, they would use it.*

Recycled asphalt – *Yes, they have used this material before. The specifications allow this material and as long as the specification is met, they would use it. For DBB projects, the material is used or recycled at the discretion of the contractor. For IH projects, the material is sold back to the asphalt vendor.*

Recycled rubberized asphalt (friction course, chip seal, crack sealer) - *Yes, but they have rarely used this material before. The asphalt vendors complain about the rubber plugging up their asphalt manufacturing equipment. As long as the specification is met, they would use it.*

Recycled tires (lightweight fill, molded rubber products, landscaping & erosion control) - *No*

Recycled glass asphalt - *No*

Recycled glass products (road base, reflective paint, glass/sand mix for ice prevention) – *No, but they are considering experimenting with a glass road base material. Specifications would have to be created and approved before continuous use.*

Recycled asphalt shingles (cold patch, dust control, temporary surfacing, HMAC⁸) – *No, but they are considering creating a specification for an experiment using this material. They are considering creating two Change Orders to specify recycled asphalt shingles in HMAC and one new project to specify recycled asphalt shingles in HMAC. Specifications would have to be created and approved before continuous use.*

Recycled steel - *Yes, they have used this material before. The specifications allow this material and as long as the specification is met, they would use it.*

Recycled lumber – *No, occasionally they use glue laminated beams. The specifications allow glue laminated lumber and as long as the specification is met, they would use it. Specifications would have to be created for other recycled lumber products and approved before continuous use.*

Recycled building facades and details - *Yes, they have used this material before. They have renovated entire buildings and used recycled bricks. Special specifications have been created to allow this material and as long as the specification is met, they would use it. Special specifications would have to be created for each unique project and approved before use on that project only.*

Recycled trees and untreated lumber (mulch) - *Yes, they have used this material before. The Parks and Recreation Department uses a lot of this material. The specifications allow this material and as long as the specification is met, they would use it.*

Recycled sewage sludge (Dillo Dirt™) – *Yes, they have used this material before. The specification for topsoil allows this material and as long as the specification is met, they would use it.*

Recycled concrete storm drain pipe – *No*

Reground concrete (road base, select fill) – *Yes, they have used this material before. The specifications allow this material and as long as the specification is met, they would use it. They are using it on the Green Decommissioning project.*

Clean fill dirt – *Yes, they have used this material before. The specifications allow this material and as long as the specification is met, they would use it.*

Reused architectural features, doors, windows, etc. - *Yes, they have used this material before. They have renovated entire buildings and used recycled bricks. Special specifications have been created to allow this material and as long as the specification is met, they would use it. Special specifications would have to be created for each unique project and approved before use on that project only.*

Does the contractor have suggestions for any recycled materials not listed above they would suggest for this program?

Recycled street bricks, chip seal rock sweepings (stockpiled, washed, and reused), modular partitions

⁸ Hot-mix asphalt concrete – a form of asphalt concrete used in road construction.

Diversion Potential

Indicate the increase in tons or ranges of tons that the contractor would be able to accept on an annual basis for above list. Include tonnage (or volume estimate) in above section.

They did not have any tonnage values but they will try to provide tonnages for asphalt millings, chip seal, and LEED.

Tip Fee/Price

Indicate the percent discount from the non-recycled product price that the contractor would require to be willing to use the above recycled materials.

They would be willing to use recycled materials as long as they are cost competitive with conventional materials. Their LEED projects require the use of recycled materials regardless of the cost.

Are there any specifications that they would require for the use of recycled/reclaimed materials?

Yes, see Post Interview Attachment

Do they have any specifications?

Yes, see Post Interview Attachment

Do they have currently any incentives or requirements for the use of recycled materials?

Yes, if a building cost exceeds \$2 million, then LEED certification is required. They also have standard bid documents 1352 Sustainable Construction Requirements and 1505 Construction and Demolition Waste.

Expansion Plans/Opportunities

Describe the expansion plans and opportunities that the contractor has for the use of recycled materials and if there are limitations to what they can accept.

Yes, they are considering expansion plans and opportunities for the use of recycled materials if the recycled materials perform well and are cost competitive. There are no limitations to what they can accept other than those imposed on conventional materials (specific project limitations).

Do they plan to have any new incentives or requirements for the use of recycled materials in the future?

No, City budgets are limited at this time.

Targeted Materials for Generated from New Construction

From the list of reclaimed/recycled materials below, determine which the contractor would be willing to generate from new construction and any requirements, such as restrictions on contamination, storage, age, or condition.

Concrete - *For DBB projects, the material is recycled at the discretion of the contractor but they must follow specification 1352 Sustainable Construction Requirements and 1505 Construction and Demolition Waste. For*

IH projects, the material is hauled to a material separation facility. There are no requirements or restrictions on contamination, storage, age, or condition.

Flexible base - *For DBB projects, the material is recycled at the discretion of the contractor but they must follow specification 1352 Sustainable Construction Requirements and 1505 Construction and Demolition Waste. For IH projects, the material is hauled to a material separation facility. There are no requirements or restrictions on contamination, storage, age, or condition.*

Asphalt - *For DBB projects, the material is recycled at the discretion of the contractor, but they must follow specification 1352 Sustainable Construction Requirements and 1505 Construction and Demolition Waste. For IH projects, the material is hauled to a material separation facility. There are no requirements or restrictions on storage, age, or condition; however, there are restrictions on contamination.*

Steel - *For DBB projects, the material is recycled at the discretion of the contractor, but they must follow specification 1352 Sustainable Construction Requirements and 1505 Construction and Demolition Waste. For IH projects, the material is hauled to a material separation facility. There are no requirements or restrictions on storage, age, or condition; however, there are restrictions on contamination.*

Lumber - *For DBB projects, the material is recycled at the discretion of the contractor, but they must follow specification 1352 Sustainable Construction Requirements and 1505 Construction and Demolition Waste. For IH projects, the material is hauled to a material separation facility. There are no requirements or restrictions on contamination, storage, age, or condition.*

Building facades and details - *Yes, they have recycled this material before for use on City projects. There are requirements or restrictions on contamination, storage, age, or condition.*

Trees - *For DBB projects, they prefer to relocate and transplant instead of cutting and mulching. For IH projects the trimmings and cuttings go to Hornsby Bend for mulching and composting. There are no requirements or restrictions on contamination, storage, age, or condition.*

Concrete storm drain pipe – *For DBB projects, the material is recycled at the discretion of the contractor, but they must follow specification 1352 Sustainable Construction Requirements and 1505 Construction and Demolition Waste. For IH projects, the material is hauled to a material separation facility as concrete waste material. There are no requirements or restrictions on contamination, storage, age, or condition.*

Clean fill dirt – *For DBB projects, the material is recycled at the discretion of the contractor, but they must follow specification 1352 Sustainable Construction Requirements and 1505 Construction and Demolition Waste. For IH projects, the material is hauled to a material separation facility. There are no requirements or restrictions on storage, age, or condition; however, there are restrictions on contamination.*

Cardboard – *For DBB projects, the material is recycled at the discretion of the contractor, but they must follow specification 1352 Sustainable Construction Requirements and 1505 Construction and Demolition Waste. For IH projects, the material is hauled to a material separation facility. There are requirements or restrictions on contamination, storage, age, or condition.*

Architectural features, doors, windows, etc. - *Yes, they have recycled this material before for use on City projects. There are requirements or restrictions on contamination, storage, age, or condition.*

Does the contractor have suggestions for any materials not listed above they would suggest for this program?

Glass, 55 gallon drums, wooden pallets, and waste oil. The city has a legal limitation that they cannot give things away for free.

Are any of these materials above currently recycled? If so, list them.

All the materials above are recycled in some manner and to some extent.

Diversion Potential

Indicate the increase in tons or ranges of tons that the contractor would be able to generate on an annual basis for above list. Include tonnage (or volume estimate) in above section.

They do not have any values.

Tip Fee/Price

Indicate the price or price range that the contractor would be willing to receive for the materials or the fee they would require to salvage the materials. Add price/price range or fee to above section or whether they would generate the materials for free.

They would be willing to recycle materials as long as it is cost competitive with land filling or other methods of disposal. Their LEED projects require that they use recycling materials regardless of the cost.

Are there any specifications that they could meet for recycled/reclaimed materials?

Industry standard descriptions

Do they have any specifications?

Specification 1352 Sustainable Construction Requirements and 1505 Construction and Demolition Waste

Do they currently have any incentives or requirements for recycling waste materials?

When a building cost exceeds \$2 million, then LEED certification is required which has requirements for recycling waste materials.

Expansion Plans/Opportunities

Describe the expansion plans and opportunities that the contractor has for generating recycled materials and if there are limitations to what they can generate.

Yes, they are considering expansion plans and opportunities for recycling waste materials if there is a viable market for the waste materials and the waste material disposal is cost competitive with landfill disposal or other disposal methods.

Do they plan to have any new incentives or requirements for recycling waste materials in the future?

No, City budgets are limited at this time.

Post Interview Attachment*Division Managers Meeting*Recycled Concrete and Asphalt, Reclaimed Asphalt and Rules Posting

- A. Limitations in Pavement Overlay and Full Depth Reclamation Projects
1. Design Flood Requirements
 2. Curb and Gutter Installations
 3. Quality of In-place Materials
- B. Specifications for Recycling and Reclaiming
1. Item 211S - Recycling Existing Aggregates (and existing asphalt surfaces and flexible bases) ----- April 17, 1986
 2. Item 203S - Lime Treatment for Materials In Place (subgrade and existing subbase and base materials) ----- September 30, 1987
 3. Item 204S - Portland Cement Treatment for Materials In Place (soil and aggregate subbases and bases) ----- August 17, 1994
 4. Item 340S - Hot Mix Asphaltic Concrete Pavement (20% max. of reclaimed asphalt or RAP allowed in base) ----- November 22, 1995
 5. Item 210S - Flexible Base (Crushed limestone principal product for specification). Recycled concrete allowed since ----- April 21, 2005
- C. Current Posting Activity
1. Item 211S - Changing title from 'Recycling Existing Aggregate' to 'Salvaging and Placing Asphalt Surface and Flexible Base Materials on Existing Subgrade'. --- Adoption date ----- February 2010
 2. Item 212S - A new Item entitled 'Recycled Concrete Flexible Base' Adoption date ----- January 2010

*Bill Hadley, PhD, PE**December 1, 2009*

Jamail & Smith Construction

Address: 8868 Research Blvd. Suite 401

Contact person: Darrell Smith, P.E. (Vice President) and Heath Willms (Project Manager)

Phone number: (512) 288-1200

Description

Established in 1982, Jamail & Smith Construction has been a major part of the construction industry for nearly 30 years throughout the State of Texas. The firm began constructing shopping centers and retail facilities in 1982 and continues to serve many of those same clients today. In 1992, facility maintenance and repair was added as a specialty, as well as the semiconductor industry. The company was early to adopt value-based construction delivery systems and today, the company specializes in Job Order Contracting (JOC), New Building Construction, Design-Build, and Construction Management at Risk Job Order Contracting (CM at Risk JOC) and the various derivatives of that concept.

The company is currently operating over fifteen (15) JOCs for Higher Education, K-12 School Districts, counties and cities in Texas. They also operate an active subcontracting and general contracting practice focusing on municipal and school renovations and repairs.

Describe the feedstock currently used in construction.

Concrete, steel, wood, asphalt, stone, brick, drywall, plastic, copper, roofing materials, finishes, paints, carpets, ceiling tiles, lighting, HVAC, plumbing, sprinklers, and electrical to name a few.

Targeted Materials for Use on New Construction

From the list of reclaimed/recycled materials below, determine which the contractor would be willing to accept and any requirements, such as restrictions on contamination.

Recycled concrete riprap – *Yes, this material has been used before. The material would have to meet the specifications.*

Recycled flexible base - *Yes, this material has been used before when it was not contaminated. The material would have to meet the specifications.*

Recycled asphalt rip rap – *Yes, this material has been used before. The material would have to meet the specifications.*

Recycled rubberized asphalt (friction course, chip seal, crack sealer) – *This material has not been used before. They are not familiar with this product, but if it met the specifications they would be willing to use it.*

Recycled tires (lightweight fill, molded rubber products, landscaping & erosion control) – *This material has not been used before. They are not familiar with this product, but if it met the specifications they would be willing to use it.*

Recycled glass asphalt – *This material has not been used before. They are not familiar with this product, but if it met the specifications they would be willing to use it.*

Recycled glass products (road base, reflective paint, glass/sand mix for ice prevention) - *Yes, this material has been used before in reflective paint. The material would have to meet the specifications.*

Recycled asphalt shingles (cold patch, dust control, temporary surfacing, HMAC) - *Yes, this material has been used before for dust control and mud control on temporary sidewalks. The material would have to meet the specifications.*

Recycled steel – *Yes, this material has been used before. The material would have to meet the specifications.*

Recycled lumber – *Yes, this material has been used before. The material would have to meet the specifications.*

Recycled building facades and details – *Yes, this material has been used before when required by the plans or owner. The material would have to meet the plans or specifications.*

Recycled trees and untreated lumber (mulch) – *Yes, this material has been used before. The material would have to meet the specifications.*

Recycled sewage sludge (Dillo Dirt™) – *Yes, this material has been used before. The material would have to meet the specifications.*

Recycled concrete storm drain pipe – *No, generally recycled pipe will not meet the specifications.*

Reground concrete (road base, select fill) - *This material has not been used before. They are not familiar with this product, but if it met the specifications they would be willing to use it.*

Clean fill dirt - *Yes, this material has been used before. The material would have to meet the specifications.*

Reused architectural features, doors, windows, etc. - *Yes, this material has been used before. The client is informed that the material “is like new condition” or “is at a discounted price”.*

Does the contractor have suggestions for any recycled materials not listed above they would suggest for this program?

Flooring (carpet, tile, rubberized flooring), ceiling tiles, doors, cabinets, stained concrete, finger jointed lumber, and specialty items (handrails, toilet paper dispensers, fixtures, grab bars).

Diversion Potential

Indicate the increase in tons or ranges of tons that the contractor would be able to accept on an annual basis for the above list. Include tonnage (or volume estimate) in above section.

They do not have a tonnage estimate. It varies from job to job. If it meets the specification and the budget allows for it, they will use it. They are willing to divert as much material away from the landfill as is economically feasible. They are willing to use recycled materials as long as it does not cost more than the use of conventional materials.

Tip Fee/Price

Indicate the percent discount from the non-recycled product price that the contractor would require to be willing to use the above recycled materials. Are there any specifications that they would require for the use of recycled/reclaimed materials?

They do not need a discount from non-recycled products in order to use recycled products. The recycled product would have to meet the performance and specifications of the non-recycled product.

Expansion Plans/Opportunities

Describe the expansion plans and opportunities that the contractor has for the use of recycled materials and if there are limitations to what they can accept.

They do not have any expansion plans or opportunities for the use of recycled materials other than market conditions. There are no limitations to what they can accept as long as it meets the specifications of the project.

They recommend an incentive to the owner to use recycled products in the form of tax credits, expedited permitting approvals, or variance approvals.

Targeted Materials for Generated from New Construction

From the list of reclaimed/recycled materials below, determine which the contractor would be willing to generate from new construction and any requirements, such as restrictions on contamination, storage, age, or condition.

Concrete - *This material has not been recycled before, but they would be willing to recycle it if the recycling cost did not exceed the landfill disposal cost. They suggested a separate dumpster for concrete recycling. They had one job where the LEED certification required recycling in order to get a credit. They would not want any requirements or restrictions on contamination, storage, age, or condition.*

Flexible base - *This material has not been recycled before, but they would be willing to recycle it if the recycling cost did not exceed the landfill disposal cost. They would not want any requirements or restrictions on contamination, storage, age, or condition.*

Asphalt - *This material has not been recycled before, but they would be willing to recycle it if the recycling cost did not exceed the landfill disposal cost. They would not want any requirements or restrictions on contamination, storage, age, or condition.*

Steel - *Yes, this material has been recycled before. The material is normally recycled by a sub-contractor involved with the steel erection. They would not want any requirements or restrictions on contamination, storage, age, or condition.*

Lumber - *Yes, this material has been recycled before. The material is normally recycled by them or a sub-contractor. They suggested a separate dumpster for lumber recycling. They would not want any requirements or restrictions on contamination, storage, age, or condition.*

Building facades and details - *Yes, this material has been recycled before if it is cost effective or requested by the owner. They would not want any requirements or restrictions on contamination, storage, age, or condition.*

Trees - *Yes, this material has been recycled before. The material is normally recycled by a sub-contractor. They suggested transplanting live trees to another site that needed trees. They would not want any requirements or restrictions on contamination, storage, age, or condition.*

Concrete storm drain pipe - *Yes, this material has been recycled before, but as a donation to a church or school for play ground objects or other uses. They would not want any requirements or restrictions on contamination, storage, age, or condition.*

Clean fill dirt - *Yes, this material has been recycled before. They would not want any requirements or restrictions on contamination, storage, age, or condition.*

Cardboard - *This material has not been recycled before, but they would be willing to recycle it if the recycling cost did not exceed the landfill disposal cost. They suggested a separate dumpster for cardboard recycling. They would not want any requirements or restrictions on contamination, storage, age, or condition.*

Architectural features, doors, windows, etc. - *Yes, this material has been recycled before if it is cost effective or requested by the owner. They would not want any requirements or restrictions on contamination, storage, age, or condition.*

Does the contractor have suggestions for any materials not listed above that they would suggest for this program?

They often take appliances, whole units, and other salvaged items to Habitat for Humanity or local churches.

Are any of these materials above currently recycled? If so, list them.

Steel, lumber, trees, concrete storm drain pipe, clean fill dirt, and architectural features.

Diversion Potential

Indicate the increase in tons or ranges of tons that the contractor would be able to generate on an annual basis for above list. Include tonnage (or volume estimate) in above section.

They do not have a known tonnage. Any recycling is based on economics.

Tip Fee/Price

Indicate the price or price range that the contractor would be willing to receive for the materials or the fee they would require to salvage the materials. Add price/price range or fee to above section or whether they would generate the materials for free. Are there any specifications that they could meet for recycled/reclaimed materials?

They would want to at least break even with the labor cost to sort and the transportation cost to ship the material to a recycler. As long as they could recycle the material at the same or cheaper cost than landfill disposal, they would be willing to recycle. If the owner was willing to pay more for the materials to be recycled, they would be willing to do it at cost.

Expansion Plans/Opportunities

Describe the expansion plans and opportunities that the contractor has for generating recycled materials and if there are limitations to what they can generate.

They have no plans for implementing recycling beyond their current levels. If there was a financial incentive, they would be interested in expanding their recycling efforts. As long as they could make money or have no additional costs, they would be willing to recycle or use recycled products. The only limitations to what they can generate are, the cost effectiveness compared to land fill costs and the availability of recyclable materials from specific projects.

DRAFT

Laughlin-Thyssen, Inc.

Address: 9120 S Fm 973, Austin, Texas 78719

Contact person: Ron Grier

E-mail: ron@laughlint.com

Phone number: (832) 473-3472

Description

Laughlin-Thyssen, Inc. is a Civil General Contractor specializing in a broad range of infrastructure projects. The company has successfully completed projects involving large complex concrete structures, large diameter steel and concrete piping, tunneling, mechanical, electrical for both power and instrumentation, and buildings associated with these projects. Projects have included structures and piping in excess of 65 feet below finished grade and significantly below surrounding water tables.

A partial listing of project types completed include water and sewer plants, lift stations, pump stations, valve vaults, line piping, concrete lined detention basins, fueling systems, lubricants and products systems, sludge stabilization, dewatering and solidification, marine construction, and erosion control. They do not build roadways or highways.

Describe the feedstock currently used in construction.

The feedstock that they currently use in construction includes sand, gravel, bedding material, asphalt, base material, pipe, steel, concrete, lumber, and machinery supplies (gasoline, diesel, and oils).

Targeted Materials for Use on New Construction

From the list of reclaimed/recycled materials below, determine which the contractor would be willing to accept and any requirements, such as restrictions on contamination.

Good quality control and specifications are the only restrictions they would place on all the recycled materials listed below if the owner or engineer wanted to use them.

Recycled concrete riprap – *Their Houston operations use a lot of recycled concrete riprap. There are several suppliers of recycled concrete riprap in Houston that provide the product at prices competitive to conventional materials. There is only a limited availability of this product in the Austin market.*

Recycled flexible base – *They use recycled flexible base on a very limited basis usually at the request of an owner.*

Recycled asphalt – *Asphalt millings are sometimes used for temporary roads or parking areas.*

Recycled rubberized asphalt (friction course, chip seal, crack sealer) – *No past use, but would be willing to use it if available, cost competitive, and approved by the owner.*

Recycled tires (lightweight fill, molded rubber products, landscaping & erosion control) – *No past use, but would be willing to use it if available, cost competitive, and approved by the owner.*

Recycled glass asphalt – *No past use, but would be willing to use it if available, cost competitive, and approved by the owner.*

Recycled glass products (road base, reflective paint, glass/sand mix for ice prevention) – *No past use, but would be willing to use it if available, cost competitive, and approved by the owner.*

Recycled asphalt shingles (cold patch, dust control, temporary surfacing, HMAC) – *No past use, but would be willing to use it if available, cost competitive, and approved by the owner.*

Recycled steel – *Recycled steel is commonly used*

Recycled lumber – *Recycled lumber is commonly used*

Recycled building facades and details – *Not used in this company's line of work*

Recycled trees and untreated lumber (mulch) – *Trees are usually chipped on-site or hauled to a chipper. Untreated lumber is reused, chipped, or set to the landfill.*

Recycled sewage sludge (Dillo Dirt™) – *Used in some limited applications*

Recycled concrete storm drain pipe – *Not used in new construction*

Reground concrete (road base, select fill) – *Their Houston operations use a lot of reground concrete. There are several suppliers of reground concrete in Houston that provide the product at prices competitive to conventional materials. There is only a limited availability of this product in the Austin market.*

Clean fill dirt – *They use a lot of clean fill dirt*

Reused architectural features, doors, windows, etc. – *Not used in this company's line of work*

Does the contractor have suggestions for any recycled materials not listed above they would suggest for this program?

The above list is complete.

Diversion Potential

Indicate the increase in tons or ranges of tons that the contractor would be able to accept on an annual basis for above list. Include tonnage (or volume estimate) in above section.

The requirements of the projects vary, so they did not have a number.

Tip Fee/Price

Indicate the percent discount from the non-recycled product price that the contractor would require to be willing to use the above recycled materials. Are there any specifications that they would require for the use of recycled/reclaimed materials?

As long as the recycled product is the same price or cheaper than the conventional material, then they would be willing to use it. The quality control of the recycled material would have to be provided by the recycled material supplier. The specifications of the owner would have to allow the use of the recycled material and the owner would have to provide guarantees to the contractor that the use of recycled products from owner approved

suppliers relieves the contractor from the responsibility for the performance of the recycled material. They do not have any specifications that they would require for the use of recycled materials.

Expansion Plans/Opportunities

Describe the expansion plans and opportunities that the contractor has for the use of recycled materials and if there are limitations to what they can accept.

They do not have specific expansion plans for the use of recycled materials. They are willing to use any recycled materials that are cost competitive and readily available. There are no limitations on what they can accept. Quality control is very important to insure the recycled product will perform as intended. Originally fly ash was a recycled product used in concrete that did not have a good quality control program. This created a lot of problems when the concrete did not perform well. Currently, fly ash is a well established ingredient in concrete due to improved quality control programs and specifications. The history of fly ash use in concrete is a good example of what is needed in any recycled product development.

Targeted Materials for Generated from New Construction

From the list of materials below, determine which the contractor would be willing to generate from new construction and any requirements, such as restrictions on contamination, storage, age, or condition.

Concrete – *They prefer to haul this material to a recycling location but if one is not available, the material is hauled to the land fill. There could be no restrictions on contamination, age, or condition. The material could not be stored by the contractor.*

Flexible base – *There is only a limited possibility to salvage flexible base and reuse it as flexible base. Usually salvaged flexible base is used as Clean Fill Dirt or hauled to the landfill. There could be no restrictions on contamination, age, or condition. The material could not be stored by the contractor.*

Asphalt - *They prefer to haul this material to a recycling location but if one is not available, the material is hauled to the landfill. There could be no restrictions on contamination, age, or condition. The material could not be stored by the contractor.*

Steel – *This material is generally hauled to a recycler. There are some restrictions on contamination, but none on age or condition. The material cannot be stored by the contractor.*

Lumber- *They prefer to haul this material to a recycling location, but if one is not available, the material is hauled to the landfill. There could be no restrictions on contamination, age, or condition. The material could not be stored by the contractor.*

Building facades and details – *They do not perform this type of work.*

Trees - *This material is generally chipped on site or hauled to a recycler. There could be no restrictions on contamination, age, or condition. The material could not be stored by the contractor.*

Concrete storm drain pipe - *They prefer to haul this material to a recycling location, but if one is not available, the material is hauled to the landfill. Sometimes the pipe is given away for private use. There could be no restrictions on contamination, age, or condition. The material could not be stored by the contractor.*

Clean fill dirt - *This material is generally recycled or hauled to an area needing fill material. There are some restrictions on contamination, but none on age or condition. The material cannot be stored by the contractor.*

Cardboard - *This material is generally hauled to a recycler. There are some restrictions on contamination, but none on age or condition. The material cannot be stored by the contractor.*

Architectural features, doors, windows, etc. – *They do not perform this type of work.*

Does the contractor have suggestions for any materials not listed above that they would suggest for this program?

The above list is complete.

Are any of these materials above currently recycled? If so, list them.

Concrete, flexible base, asphalt, steel, lumber, trees, concrete pipe, clean fill dirt, and cardboard.

Diversion Potential

Indicate the increase in tons or ranges of tons that the contractor would be able to generate on an annual basis for above list. Include tonnage (or volume estimate) in above section.

They said there is no way to estimate these numbers. It varies from project to project.

Tip Fee/Price

Indicate the price or price range that the contractor would be willing to receive for the materials or the fee they would require to salvage the materials. Add price/price range or fee to above section or whether they would generate the materials for free. Are there any specifications that they could meet for recycled/reclaimed materials?

As long as the cost to recycle or send the materials to a recycler is equal to or less than the transportation cost to the landfill and the landfill tipping fee, they would be willing to recycle. They do not have any prices for materials they would generate. They do not have any specifications.

Expansion Plans/Opportunities

Describe the expansion plans and opportunities that the contractor has for generating recycled materials and if there are limitations to what they can generate.

They said each job is unique and the bottom line is being price competitive with other contractors. They think there are possibilities to generate and use recycled materials by the firm.

Texas Department of Transportation

Address: 3800 Jackson, Building 5, Austin Texas 78731

Contact person: Woody Raine, P.E./Recycling Program Coordinator

E-mail: wraine@dot.state.tx.us

Phone number: (512) 302-2422

Description

The Texas Department of Transportation's (TxDOT) workforce of more than 12,000 employees is made up of engineers, administrators, designers, architects, sign makers, accountants, purchasers, maintenance workers, travel counselors and many other professions. TxDOT, in cooperation with local and regional officials, is responsible for planning, designing, building, operating, and maintaining the state's transportation system.

Headquartered in Austin, TxDOT is made up of 21 divisions and 6 offices. Four regional support centers provide operational and project delivery support for the agency's 25 geographical districts.

Describe the feedstock currently used in construction.

Concrete, asphalt, flex base, aggregate, steel, fibermulch, and compost, plus products containing recycled rubber, plastic, or paper

Targeted Materials for Use on New Construction

From the list of reclaimed/recycled materials below, determine which the contractor would be willing to accept and any requirements, such as restrictions on contamination.

Recycled concrete riprap – *Yes, they used some of this material before. The material would have to meet the specifications.*

Recycled flexible base – *Yes, but only as recycled in place. This means that they either remove the old asphalt or pug mill the old asphalt into the base and then add an additional layer of new flex base and HMAc or just new HMAc. They have a specification for "full-depth recycling" which is used when the old asphalt is mixed with the base. They have experimented with blending glass into flex base twice. Generally, the transportation cost of the glass and limited quantity of glass is cost prohibitive for large-scale highway projects. The material would have to meet the specifications.*

Recycled asphalt - *Yes, they have used this material called Reclaimed Asphalt Pavement (RAP). They have specifications for its use in base or asphalt pavement. The RAP is ground and separated into coarse and fine fractions. The coarse and fine fractions are used to make new HMAc. The material would have to meet the specifications.*

Recycled rubberized asphalt (friction course, chip seal, crack sealer) - *Yes, they have used this material before. They use about 1 million tires' worth of rubber per year, mostly in chip seal applications. The asphalt binder sealer has 5% recycled rubber content and chip rock is spread on top of the sealer. They have also experimented with a permeable friction course HMAc on several Austin-area roadways that uses 20% recycled*

rubber in the asphalt binder. The permeable friction course H₂MAC provides a relatively dry surface during wet weather and generates less noise than normal H₂MAC. The material would have to meet the specifications.

Recycled tires (lightweight fill, molded rubber products, landscaping & erosion control) – *Yes, they have placed chipped tire-rubber fill only on an experimental basis. To date they have found it not cost effective. They are working with the University of Texas on baled tires (1 ton cubes) for retaining walls. Unfortunately, there are no manufacturers of baled tires in the Austin area. The material would have to meet the specifications. They use several recycled-rubber products, however, including such roadside safety devices as channelizers, delineators, and guardrail spacer blocks.*

Recycled glass asphalt – *No, but other states have done it.*

Recycled asphalt shingles (cold patch, dust control, temporary surfacing, H₂MAC) - *Yes, they have used this material before. They have a specification for it. The old shingles are ground up to smaller than 3/8" and used in H₂MAC. There are 4 locations processing shingles in the Austin area. They use up to 5% shingles in the asphalt binder. The material would have to meet the specifications.*

Recycled steel – *Yes, for example, rebar is generally 100% recycled steel. The material would have to meet the specifications.*

Recycled lumber - *No*

Recycled building facades and details - *No*

Recycled trees and untreated lumber (mulch) – *Yes, some wood chips are used in landscaping. Their specifications for erosion control compost calls for 50% mulch. The material would have to meet the specifications.*

Recycled sewage sludge (Dillo Dirt™) - *Yes, some compost is used in compost manufactured topsoil, general use compost, and erosion control compost. There are specifications for these materials. The material would have to meet the specifications.*

Recycled concrete storm drain pipe - *No*

Reground concrete – *Yes, they use this material called Recycled Concrete Aggregate (RCA). The material from reputable manufacturers, generally meets the flexible base specifications. Transportation cost is generally the limiting parameter to compete with limestone flexible base. The material would have to meet the specifications.*

Clean fill dirt – *Yes, in large quantities. The material would have to meet the specifications.*

Reused architectural features, doors, windows, etc. - *No*

Does the contractor have suggestions for any recycled materials not listed above that they would suggest for this program?

They also use the following additional recycled materials:

Molded rubber/plastic lumber on their equipment trailers costs more than lumber but has better performance and lasts longer than lumber. Tire rings and molded rubber for the base rings on traffic control barrels. Rubber delineator posts, plastic reflectors, and plastic sign substrate are used for signing and object marking. Plastic

fabric mow strips are being tested on an experimental basis to replace concrete mow strips. Concrete with rubber chips has been proposed for use on an experimental basis for non-structural concrete such as sidewalks and slope paving. The rubberized concrete is weaker, but more flexible. TxDOT is open to using sand blasting sand, industrial/hydrocarbon impacted soil (certified as non-toxic), and electronic filter cake for aggregate and fill material. Railroad ties made of rubber/plastic are being considered to replace timber and concrete railroad ties by TxDOT and the railroad industry.

Diversion Potential

Indicate the increase in tons or ranges of tons that the contractor would be able to accept on an annual basis for the above list. Include tonnage (or volume estimate) in above section.

See post interview attachment for information

Tip Fee/Price

Indicate the percent discount from the non-recycled product price that the contractor would require to be willing to use the above recycled materials.

They will only pay more for a recycled product if it can be justified by a recycled product performing better than a conventional product. Normally the recycled product has to be cost competitive with conventional products and provide an equivalent performance.

Are there any specifications that they would require for the use of recycled/reclaimed materials?

See post interview attachment for information

Do they have any specifications?

See post interview attachment for information

Do they currently have any incentives or requirements for the use of recycled materials?

In order for them to use recycled materials, they must perform better than conventional materials or be cost competitive with conventional materials. They sometimes require recycled materials when these conditions are met. They currently do not have any incentives for recycled materials. Several years ago, they had an incentive based on the retainage. The normal project retainage was 5% and if the contractor used recycled products the retainage was reduced to 4%. The problem discovered was that every contractor claimed to be using recycled products and requested the 4% retainage. The system had potential if it was modified to have accountability, but the entire retainage system was eliminated for other reasons.

Expansion Plans/Opportunities

Describe of the expansion plans and opportunities that the contractor has for the use of recycled materials and if there are limitations to what they can accept.

They do not have any expansion plans for transportation projects. They are studying and experimenting with several recycled products. They will consider any recycled materials that perform well and are cost effective.

Do they plan to have any new incentives or requirements for the use of recycled materials in the future?

They are discussing using a project grading system for transportation projects like the LEED system for building projects.

Targeted Materials for Generated from New Construction

From the list of reclaimed/recycled materials below, determine which the contractor would be willing to generate from new construction and any requirements, such as restrictions on contamination, storage, age, or condition.

Concrete – *This material is recycled at the discretion of the contractor. There are no restrictions on contamination, storage, age, or condition.*

Flexible base – *This material is recycled at the discretion of the contractor. There are no restrictions on contamination, storage, age, or condition.*

Asphalt – *This material is recycled at the discretion of the contractor. There are no restrictions on contamination, storage, age, or condition. Sometimes TxDOT retains possession and gives asphalt millings to the local County for County roadway use. This practice is done less currently than it was in the past.*

Steel – *This material is recycled at the discretion of the contractor. There are no restrictions on contamination, storage, age, or condition.*

Lumber – *This material is recycled at the discretion of the contractor. There are no restrictions on contamination, storage, age, or condition.*

Building facades and details- *No*

Trees – *This material is recycled at the discretion of the contractor. There are no restrictions on contamination, storage, age, or condition.*

Concrete storm drain pipe - *This material is recycled at the discretion of the contractor. There are no restrictions on contamination, storage, age, or condition.*

Clean fill dirt – *This material is recycled at the discretion of the contractor. There are no restrictions on contamination, storage, age, or condition.*

Cardboard– *This material is recycled at the discretion of the contractor. There are no restrictions on contamination, storage, age, or condition. For in-house TxDOT office waste, they have policies for cardboard, paper, books, bottles, aluminum cans, and electronics. They recycle about 400-500 tons per year of office wastes from Austin-area TxDOT facilities.*

Architectural features, doors, windows, etc. - *No*

Does the contractor have suggestions for any materials not listed above they would suggest for this program?

Broken pallets and crates are sent to a chipper

Are any of these materials above currently recycled? If so, list them.

Materials from transportation projects are recycled at the discretion of the contractor.

Diversion Potential

Indicate the increase in tons or ranges of tons that the contractor would be able to generate on an annual basis for above list. Include tonnage (or volume estimate) in above section.

Materials from transportation projects are recycled at the discretion of the contractor.

Tip Fee/Price

Indicate the price or price range that the contractor would be willing to receive for the materials or the fee they would require to salvage the materials. Add price/price range or fee to above section or whether they would generate the materials for free.

Materials from transportation projects are recycled at the discretion of the contractor.

Are there any specifications that they could meet for recycled/reclaimed materials?

There are no specifications for materials from transportation projects going to a recycling facility. For in-house TxDOT office waste, they must meet normal industry descriptions and sorting requirements.

Do they have any specifications?

No

Do they currently have any incentives or requirements for recycling waste materials?

No, materials from transportation projects are recycled at the discretion of the contractor. In-house office and vehicle maintenance TxDOT facilities wastes are recycled according to law (waste oil and Hazardous Materials). They have policies for recycling, promote recycling, and provide convenient recycling bins for TxDOT office waste recycling.

Expansion Plans/Opportunities

Describe the expansion plans and opportunities that the contractor has for generating recycled materials and if there are limitations to what they can generate.

They do not have any expansion plans for transportation projects. They do have plans for in-house TxDOT offices wastes to recycle more products, but they are based on cost effective solutions.

Do they plan to have any new incentives or requirements for recycling waste materials in the future?

They do not plan to have any new incentives or requirements for recycling waste materials in the future for transportation projects. They do not plan to have any new incentives or requirements for recycling waste materials in the future for in-house TxDOT offices wastes unless it is cost effective.

Post Interview Attachment

Here are the links we discussed:

- www.txdot.gov/business/contractors_consultants/recycling - TxDOT Recycling home page
- www.txdot.gov/business/contractors_consultants/recycling/materials.htm - material summaries
- www.txdot.gov/business/contractors_consultants/recycling/speclist2.htm - specs by material
- www.txdot.gov/business/contractors_consultants/recycling/recycle_guidelines.htm - Environmental Guide including links to:
 - [prequalified suppliers \(ftp://ftp.dot.state.tx.us/pub/txdot-info/cmd/mpl/nrm.pdf\)](ftp://ftp.dot.state.tx.us/pub/txdot-info/cmd/mpl/nrm.pdf)
 - [department material specification DMS-11000 \(ftp://ftp.dot.state.tx.us/pub/txdot-info/cst/DMS/11000_series/pdfs/11000.pdf\)](ftp://ftp.dot.state.tx.us/pub/txdot-info/cst/DMS/11000_series/pdfs/11000.pdf)

The two special provisions (below) have not been added to the spec list above. They allow contractors to add up to five percent recycled asphalt shingles (RAS) to asphalt pavement. They also allow higher percentages of reclaimed asphalt pavement (RAP), if it's fractionated (separated into fine and coarse fractions):

- Special Provision 341-024 Dense-Graded Hot-Mix Asphalt (QC/QA)
- Special Provision 340-003 Dense-Graded Hot-Mix Asphalt (Method)

Questions about quantities: Statewide TxDOT numbers can be found on this page:

www.txdot.gov/business/contractors_consultants/recycling/performance.htm

The following numbers apply to work on TxDOT projects in the 11 counties of the Austin District (www.txdot.gov/local_information/austin_district) during FY09, which ended August 2009:

- 100,000 cubic yards of asphalt pavement reclaimed
- 6,000 cubic yards of concrete pavement reclaimed
- 83 tons of crumb rubber in asphalt binder for Chip Seals
- 23 tons of crumb rubber in hot mix asphalt pavement
- 666 cubic yards of compost in compost manufactured topsoil
- 760 cubic yards of compost in general use compost (which is usually used for landscaping)
- 55 tons of hydromulch (made from recycled paper, usually newspaper) to control erosion

The following is the link to the spec for "rubberized concrete," which we call Special Specification 4243 Crumb Rubber Concrete: <ftp://ftp.dot.state.tx.us/pub/txdot-info/cmd/cserve/specs/2004/spec/ss4243.pdf>

In addition, another molded rubber product that TxDOT contractors place lots of is a rubber-composite guardrail spacer block, which must comply with the TxDOT material specification DMS-7210 at:

ftp://ftp.dot.state.tx.us/pub/txdot-info/cst/DMS/7000_series/pdfs/7210.pdf

Several specs and lists of prequalified recycled-content products can be accessed from this page:

http://www.txdot.gov/business/contractors_consultants/recycling/roadway.htm

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Appendix C – Voluntary Take-Back Case Studies

Jurisdiction Case Studies

- British Columbia, Canada
- Del Norte County, California
- New York, New York
- City of Ottawa, Ontario, Canada
- San Luis Obispo County, California
- Santa Clara County, California

Local Retail Surveys

- Barton Springs Nursery
- Batteries Plus
- Bicycle Sport Shop
- Commercial Surface Installations
- H-E-B
- Hewlett-Packard Company
- Live Oak Pharmacy
- Specs Wine, Spirits & Fine Food
- The Light Bulb Shop
- Westbank Dry Cleaning
- Whole Foods

British Columbia, Canada

Description

British Columbia (BC) endorses product stewardship as a management strategy guided by the principle that whoever designs, produces, sells or uses a product takes responsibility for minimizing that product's environmental impact.

Producers can collect and recycle their products or choose to appoint an agency to carry out its duties and report performance. The Provincial government develops legislation and regulations that product stewards must follow. The Provincial government approves the plans, monitors performances and enforces compliance. Local government may provide facilities and producers must fund those facilities to handle their products. Local governments inform the public of the program and help the stewards by imposing bans. Retailers can be members of the product stewardship organizations and may collect fees at the point of purchase. Consumers should watch what they buy.

Targeted Materials

Currently in British Columbia the following products fall under product stewardship: beverage containers, electronics, tires, used lubricating oil, filters and containers, pharmaceuticals, paints, solvents, pesticides and gasoline, batteries and cell phones.

Product stewardship organizations include the following:

- **Encorp Pacific (Canada)** is the industry product stewardship corporation mandated to develop and manage a consumer friendly and cost effective system to recover end-of-life consumer product and container packaging for recycling. There are 180 “return it” depots for beverage and alcohol containers.
- **Electronic Stewardship Association of BC** set up by major producers and retailers for electronics and includes fees for CRT's (TV and computer monitors, computers and peripherals), printers and FAX machines.
- **Tire Stewardship BC** is a non-profit society and collects an Advance Disposal Fee on the sale of every new tire.
- **Brewers Distributor Limited** will pay 10 and 20 cents for empty beer containers in over 1,200 locations across British Columbia at both government and private liquor stores.
- **BC Used Oil Management Association** is responsible for oil filters and containers, charges a fee at point of sale, and have collection centers.
- **Post Consumer Pharmaceutical Stewardship Association** includes consumer health products at participating pharmacies for no fee.
- **Product Care Association** takes paint, flammable liquids, pesticides and waste gasoline by fee at product care depots with fees paid by the industry members and may be shown by retailers.

- **Call2Recycle** (Rechargeable Battery Recycling Corporation of Canada) is the only free battery and cell phone collection program.

The British Columbia Product Stewardship Council

The British Columbia Product Stewardship Council (BCPSC) was originally established in 2001 (as the Local Government Stewardship Council) under the auspices of the Union of BC Municipalities (UBCM) to offer advice to the provincial government on the effectiveness of existing Extended Producer Responsibility (EPR) programs and to suggest what products should be the focus of future programs. At the time, it was made up of representatives from nine of BC's 27 regional governments, UBCM staff and, staff from the BC Ministry of the Environment in a resource role. After only a few meetings the Council became inactive, largely due to lack of leadership.

In 2006, staff from the regional districts, the level of government responsible for waste management planning and program implementation, revitalized the Council to provide a forum for the exchange and consolidation of EPR related information from all regional governments in the province with the parallel goal of providing advice to senior government regarding the effectiveness of existing Extended Producer Responsibility programs and suggestions for future programs. The BCPSC also liaises with other stewardship councils to promote EPR as a waste management policy throughout North America.

The BCPSC is made up of representatives from 26 of British Columbia's 27 Regional Districts, the Recycling Council of British Columbia, and the Union of British Columbia Municipalities and, in an advisory capacity, staff from the BC Ministry of Environment.

Mission

- To provide a forum for the exchange of information regarding existing and proposed EPR Programs in British Columbia
- To provide information to the Ministry of Environment and stewardship agencies regarding the effectiveness of existing EPR programs
- To develop a prioritized list of future EPR programs based on the Minister's agreement that the ultimate scope of EPR programs is all product waste
- To propose a time line for the implementation of EPR programs for all product waste
- To liaise with Product Stewardship Councils in other jurisdictions
- To provide input to the Ministry of Environment in the review and approval of stewardship plans.

Del Norte County, California

Contact person: Tedd Ward

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Description

Del Norte Pilot Battery Take-back Project

The Del Norte Solid Waste Management Authority (DNSWMA) conducted a pilot battery recycling take-back program in cooperation with the Rechargeable Battery Recycling Corporation (RBRC) and retailers and public sites throughout Del Norte County. Data from the pilot project is from April 2009 through February 9, 2010. For this pilot project, RBRC agreed to accept all batteries – alkaline and rechargeables – in their battery boxes. DNSWMA staff promoted the program to local businesses and community locations, twenty-five of which agreed to participate in the pilot project. RBRC boxes were provided to the collection sites, along with pre-paid shipping labels, initial training, and window stickers to identify the collection sites. DNSWMA provided advertising via newspaper and radio ads.

The sites collected a total of 4,776 pounds of batteries during the pilot project. 3,700 pounds of alkalines and 1,076 pounds of rechargeable batteries and cell phones were collected. By comparison, prior to the start of the pilot project, there were four retailers in Del Norte County (Rite Aid, Home Depot, Wal-Mart, and Crescent Ace Hardware) participating in RBRC's battery recycling program for rechargeable batteries only. During the previous one year period, the four sites collected a total of 137 pounds of batteries: 126 pounds of rechargeable batteries and cell phones and 11 pounds of alkaline batteries. The pilot project resulted in an increase of more than 3,000 percent (see table below.)

Table 1 – Comparison of Del Norte Batteries Collected:

Baseline 08/09 vs. Pilot Project 09/10

Date	Alkaline Batteries (lbs.)	Rechargeable Batteries (lbs.)	Total lbs/yr
April 1, 08 - 09	11	126	137
April 1, 09 - 10	3,700	1,076	4,776

It is impossible to determine the percentage of batteries collected vs. the amount sold because sales data is unavailable.

The cell phone recycling was not as successful as the battery program with only 56 cell phones collected, weighing 3 lbs. total, according to RBRC data.

Conclusions from Del Norte Pilot Battery Take Back Project

This project has documented that when the public has convenient access to battery collection locations and they know about the program, they will participate and will create a huge increase in

compliance with the battery disposal ban with a 3,000 percent increase in recovery. Thanks to the partnership provided by the Rechargeable Battery Recycling Corporation (RBRC), battery recycling has been made more convenient by comingling rechargeable and alkaline batteries and having the batteries sorted by professionals, free of charge to the collection sites. With the right supports, there are many locations that will accept the batteries from the public including supermarkets, uniform shops, gambling casinos, and hardware stores.

The key to getting locations to become battery collection sites is:

1. Make it free and easy for the collection sites to participate
2. Advertise the program so collection locations benefit from being a collection site
3. Provide free window stickers and information they can give the employees and customers on program

This project also confirmed that to increase battery collection rates, the following must be done:

- Eliminate the battery taping/bagging requirements
- Increase advertizing to the public
- Ensure displays are attractive and highly visible

A very important lesson from this project is that the local jurisdiction cannot “sell” battery collection as a benefit to retailers and other potential collection sites because they did not see enough benefit through increased traffic flow, increased sales, new customers, or increased customer loyalty to continue the program at their own expense.

In summary, it was documented that with a public/private partnership between the battery industry, represented through RBRC and local governments on the ground working with locations and assisting with advertising, battery collection rates can significantly increase as long as the project is adequately funded and easy to follow. However, without an ongoing funding source, the DNSWMA cannot continue the pilot program and most of these collection sites will stop collecting after the project is over. RBRC indicated they will only continue the co-collection of alkaline and rechargeable batteries through April 2010. However, this project documents the need for a product stewardship approach to household batteries which would provide a sustainable funding source for the collections and advertising. It is now known that RBRC can accept both types of batteries successfully and hopefully this project will make the case to their organization that they can be good stewards of all types of household batteries, not just the rechargeable batteries. The RBRC partnership has played a large role in the success of this project.

The cell phone recycling was relatively unsuccessful as compared to the battery recycling program.

Targeted Materials

The materials that Del Norte encourages its retailers/manufacturers to accept include household alkaline and rechargeable batteries and cell phones.

Are these materials diverted through other programs (such as curbside recycling)?

Batteries are not diverted through curbside recycling. Used batteries can be dropped off at household hazardous waste facilities. California law requires all retailers that sell or have sold rechargeable batteries to take back spent batteries for recycling at no cost to the consumer.

Does the jurisdiction collect or recycle pharmaceuticals?

Pharmaceuticals are not currently recycled, but may be targeted in the coming years.

For the materials that are taken back, how are they handled? Are they sent back to the manufacturer? Sent to a recycler? Disposed?

The batteries are mailed back to RBRRC program, where they are processed for recycling.

Diversion Amount

See Table 1 above for the amounts of the materials that are being diverted through retailers/manufacturers on an annual basis.

Tip Fee/Price

The retailers accept the materials for free, but only provide floor space for the recycling boxes and window space for the recycling promotional flyers. The recycling boxes, promotional flyers, public notification and promotion of the program, service of the recycling boxes and flyers, and the shipping cost of the collected recycled materials is provided by Del Norte or its affiliates.

What has been the cost of the program to Del Norte County?

The program was funded through a grant, which paid for outreach, training, distribution of boxes, and maintenance and survey. RCRB paid for the actual recycling.

Advantages and Disadvantages

Advantages:

- It was a true “Extended Producer Responsibility” program, as it was not a burden on the store or the consumer.
- Store traffic increased somewhat.

Disadvantages:

- The biggest hassle was the required taping of battery terminals.

How did Del Norte County arrive at their take-back system and why they choose this system rather than other techniques that are use in other jurisdictions?

Del Norte County was an ideal candidate for the pilot take back program because the county is small and somewhat isolated, which allowed for a more accurate tracking of battery collection and less cross-border drop offs (from other counties).

City of New York, New York

Contact person: Robert Lange, Director of Bureau of Waste Prevention, Reuse, and Recycling.

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Description

Some items not accepted through NYC's curbside or commercial recycling program must or can be recycled through mandatory and voluntary take-back programs. Certain items are required by law to be accepted by retailers or manufacturers in a mandatory Take-Back Program. Other items are recycled in Voluntary Take-Back Initiatives. The NYC Department of Sanitation's Bureau of Waste Prevention, Reuse, and Recycling (BWPRR) manages the implementation and on-going monitoring of NYC's "take back" laws, such as the electronics recycling law and the rechargeable battery recycling law.

Some litigation is ongoing for the Electronic Equipment Collection Recycling and Reuse Act enacted by NYC. Several electronic manufacturers have filed a lawsuit against the City of New York and the NYC Department of Sanitation (DSNY) in regard to New York City's e-waste law and the rules promulgated thereunder. By a stipulation between the parties to the lawsuit, DSNY has agreed to stay all requirements of the E-waste Program pending a decision on Plaintiff's motion for a preliminary injunction. The Act, enacted as Local Law 13 of 2008, requires electronics manufacturers that sell products in NYC to accept their products for recycling at no cost to the consumer. Covered electronics are banned from disposal by any person or entity in NYC starting July 1, 2010. The Rules, developed by DSNY, define covered electronics, take-back requirements, and the responsibilities of relevant parties. Local Law 21 of 2008 amended the electronics law to require manufacturers to comply with specific electronic waste collection performance standards.

Many of the mandatory take-back laws fall under State regulation, such as the New York State Plastic Bag Reduction, Reuse, and Recycling Act, which requires certain retail stores in NYC and State to accept plastic carryout bags, and the Returnable Container Act, which requires a 5 cent deposit on carbonated soft drinks, water, soda water, beer, malt beverages, and wine cooler containers under 1-gallon. Dealers must refund the deposit on all containers of the same type (brand, size, shape, color, and composition) they sell for off-premises consumption, regardless of where the container was originally purchased. The New York State Wireless Recycling Act requires all wireless providers who sell cell phones within the state to accept cell phones for recycling. Many wireless providers have in-store collection programs and mail-back programs, where a cell phone can be sent back to the wireless provider for recycling at no cost. All NY hospitals and nursing homes are required by law to act as collection centers for used household sharps. Under State law, businesses that sell or install tires must take back tires of approximately the same size that they sell. People can recycle up to the same amount of tires that they buy new. The fee for the collection of old tires is included in the cost of new tires.

Mandatory take-backs required by NYC law include auto batteries, paper, and rechargeable batteries. All service stations and supply stores that sell auto batteries are required to accept them at no charge.

When purchasing new auto batteries, a \$5 refundable deposit is placed on them. Many businesses like copy stores where customers generate paper waste are required to provide labeled containers for these recyclables. New York City's Rechargeable Battery Law (Local Law 97 of 2005) makes it illegal to discard rechargeable batteries in the trash (or recycling containers). With the exception of food stores with less than 14,000 square feet of display space, all New York City stores that sell rechargeable batteries (or products containing rechargeable batteries) must accept rechargeable batteries for recycling. Retailers who sell rechargeable batteries (or products containing rechargeable batteries) through the internet, mail, or telephone to NYC residents must notify their customers about opportunities to recycle rechargeable batteries at no cost.

Is the electronic recycling law perceived as being burdensome to the retailers?

No, because there is no explicit role for retailers articulated in the law.

Are there changes that they are considering in the electronic recycling law due to the lawsuit?

Yes, but the litigation is not yet settled so none of that can be discussed.

Is the City looking to regulate any other materials for mandatory take-back?

Perhaps, but we wouldn't discuss that until a law is proposed.

Is there are statewide approach to product stewardship that the City is participating in?

Our state legislators have been reluctant to pass state take-back laws. Typically, NYC will pass a law and shortly thereafter the state will pass the same law with few exceptions and preempt the City's law.

Would there be recommendations that the City has for Austin in approaching this issue?

We would recommend that Austin utilize the services of PSI and PPI⁹ rather than trying to go it alone. All Take-back legislation is crafted within a particular political context which only the municipal staff at Austin know best. PSI and PPI can inform Austin staff about what is happening in the rest of the country and how other jurisdictions have approached take-back legislation.

What would they do differently?

Again, this is a matter of local politics.

Targeted Materials

The mandatory Take-Back Program requires retailers or manufacturers to accept electronic equipment, auto batteries, bottles and cans, cell phones, motor oil, paper, plastic bags, rechargeable batteries, sharps, and tires. Some of these same mandatory take-back materials are diverted from the waste stream by curbside recycling (paper and bottles and cans). Old tires can be disposed at any NYC Department of Sanitation garage. NYC residents may also drop off auto batteries, motor oil, and car tires to designated Household Special Waste Drop-Off Sites operated by the NYC Department of Sanitation.

⁹ PSI is Product Stewardship Institute and PPI is the Product Policy Institute. Both our non-profit groups that advocate for take back legislation.

Voluntary Take-Back Initiatives are available for the recycling of Clothing & Accessories (clothing, baby items, cosmetics, and metal hangers), Construction Materials (ceiling and flooring, lighting, and thermostats), Kitchen Goods (water filters and #5 plastic), Electronics & Accessories (camera film, cell phones, electronics, ink and toner cartridges, and rechargeable batteries), and Storage and Shipping (boxes, packaging, pallets, and crates). Some of these same voluntary take-back materials are diverted from the waste stream by mandatory or curbside recycling (electronic equipment, cell phones, and rechargeable batteries).

Does the jurisdiction collect or recycle pharmaceuticals?

No.

For the materials that are taken back, how are they handled? Are they sent back to the manufacturer? Sent to a recycler? Disposed? Who pays?

Batteries: Go back to Rechargeable Battery Recycling Corporation (RBR).

Plastic bags: Are handled by retailers.

Electronics (still in litigation): Go back to manufacturers either directly by mail or through recyclers operating on their behalf.

Diversion Amount

What amounts of the materials that are being diverted through retailers/manufacturers on an annual basis?

Not yet calculated.

Tip Fee/Price

Do the retailers/manufacturers accept the materials for free, require a subsidy or payment, or pay for the materials? *Materials are accepted for free.*

Advantages and Disadvantages

Advantages:

- Items that are problematic either from a disposal standpoint or from a public perception standpoint are directed away from municipal collection, reducing or eliminating the municipal costs associated with addressing these materials.

Disadvantages:

- Big political lift. May cause some union concerns with the collection workforce that perceive that take-back laws mean ultimately a smaller collection workforce.

How did NYC arrive at their take-back system and why did they choose this system rather than other techniques that are used in other jurisdictions?

Local politics, a declining economy and tax base, and a growing concern about the long-term environmental and cost impacts associated with the disposal of some consumer products.

City of Ottawa, Ontario, Canada

Contact person: George Reimer, Waste Diversion Coordinator, City of Ottawa

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Phone number: george.reimer@ottawa.ca

Description

Almost 600 retailers and charitable organizations voluntarily make it possible to safely dispose, recycle or reuse unwanted consumer products. The Take it Back! Program ensures that automotive, electronic, garden supplies, health, and household materials are reused, recycled or disposed of properly instead of going to the landfill.

The Take it Back! Program encourages local businesses to "take back" many of the household materials that they sell to ensure they are reused, recycled or disposed of properly. This program provides a convenient and safe way for residents of Ottawa, to return household items that should not go in the garbage, to participating retailers and charitable organizations. As well, the program has become an alternative to the residential recycling boxes and Household Hazardous Waste depots. For example, used motor oil, which is accepted at City-run Household Hazardous Waste depots, can be conveniently brought back to many gas stations, garages, and car dealerships listed in the program.

Take it Back! partner retailers, charitable organizations, and depots are listed in an annual directory and on the City's website at ottawa.ca/takeitback. The directories are available at City Hall, all Client Service Centers, libraries, community centers and some retail locations. The directories list the retailer's name, address, and phone number.

Are there any mandatory take-back programs in Ottawa?

There are mandatory programs in which manufactures and retailers pay into a fund. Manufacturers and retailers are paid by the fund to pick up items. These items include tires, electronics, and household hazardous materials. Currently, pick up locations are voluntary. Electronics pick up pays \$186 per ton.

Targeted Materials

Automotive materials in the Take it Back! Program include antifreeze, automobiles, car batteries, car parts, gasoline, kerosene, motor oil, oil filters, propane tanks, radiators, scrap metal, tires, transmission filters, and transmission oil.

Electronic materials in the Take it Back! Program include air conditioners, appliances, batteries, breakers, switches, wiring, CD players, camcorders, cameras, cell phone accessories, cell phone batteries, cell phones, compact disc cases, compact discs, computers, DVD players, dehumidifiers, digital cameras, electric motors, electronic gaming equipment, fax machines, flat screen monitors, flat screen televisions, floppy discs, fluorescent tubes, headsets, high energy discharge lamps, keyboard/mouse, lamps, laser cartridges, lawn mowers, compact fluorescent bulbs, light fixtures, microwave ovens, monitors, non-laser cartridges, pagers, personal digital assistants (blackberry,

palm, etc.), photocopier cartridges, power tools, printers, servers, small appliances, snow blowers, stereos, telephone equipment, telephones, televisions, VCRs, and vacuums.

Garden Supplies materials in the Take it Back! Program include cedar branches and clippings, flower pots, plastic flats, and styrofoam flats.

Health materials in the Take it Back! Program include bathroom aids for the disabled, canes, electric hospital beds, electric lift systems for the disabled, eyeglass cases, eyeglass lenses, eyeglasses, livestock medication, medication, mobility aids, sunglasses, unused needles and syringes, walkers, and wheel chairs/parts.

Household materials in the Take it Back! Program include all reusable household goods, barbeques, bicycles/parts, books, bottles, bubble wrap, building supplies, burlap coffee/rice bags, camping gas cartridges, canvas coffee bags, cardboard, clothes hangers, clothing, cutlery, dishes, dry cleaning bags, egg cartons, electric bicycles, envelopes, fabric scrap, fur coats, furniture, glass jars w/lids, housewares, knick knacks, latex paint/coatings, linen, mesh onion bags, musical instruments, office furniture, office supplies, oil paint, paper, paint primers/thinners, plastic grocery bags, plastic tubs with lids, polypropylene bags, sheets and blankets, shoes, sports equipment, stains, styrofoam chips/sheets, tools, towels, toys, typewriters, and vintage clothing/accessories.

Are these materials diverted through other programs (such as curbside recycling)?

Curbside recycling is available for bottles, glasses, and aluminum; for paper products (cardboard, books, paper, etc); and for garbage organics (leaves, brush, kitchen waste, meat bones).

Periodic events are held for collection of household hazardous materials.

Two weekends a year a curbside give-away is held, turning garbage into treasure.

Does the jurisdiction collect or recycle pharmaceuticals?

Yes, pharmacies and the City accepts pharmaceuticals through the Take it Back! Program.

For the materials that are taken back, how are they handled? Are they sent back to the manufacturer? Sent to a recycler? Disposed? Who pays?

Manufacturers and retailers participating in the Take it Back! Program volunteer to participate and are paid through the fund. Residents do not pay for the service.

What are the names of the retailers that are participating in the program?

A list of retailers participating in the Take it Back program, who will accept paint, electronics, and tires, can be found at the City of Ottawa's website. (<http://app01.ottawa.ca/takeitback>).

There are almost 600 retailers and charitable organizations that participate in the Take it Back! Program. Examples of participants follow.

Latex and Oil Paint: The Home Depot Canada, Lowe's, RONA Home and Garden

Rechargeable Batteries: Hewlett Packard, Battery Plus, Staples Business Depot

Household Batteries (AA, AAA): The Home Depot Canada, Ikea

Cell Phones: Battery Plus, Bell World, Cellular Unlimited, Staples Business Depot, Rogers Plus Store

Medication: Wal-Mart Pharmacy, Drugstore Pharmacy, Pharma Plus Drugmart, Shoppers Drug Mart

Eyeglasses: Lenscrafters, Lunetterie NEWLOOK Eyewear

Sharps: Drugstore Pharmacy, Pharma Plus Drugmart, Shoppers Drug Mart, Pro Medical Pharmacy, The Medicine Shoppe

Diversion Amount

Each year Take It Back! Partners divert over 500 tons of material from the municipal landfill.

According to George Reimer, this figure is not current. Although an audit has not been done recently, Reimer expects there are now three times more retailers and collection of products, i.e., 1,500 tons of materials diverted.

Tip Fee/Price

Some retailers/manufacturers accept the materials for free and some require a subsidy.

Advantages and Disadvantages

Disadvantages:

- Residents must telephone ahead to the retailer
- Products must be returned during business hours
- Only for residential customers
- Quantities may be limited
- A small handling fee may apply

Reimer suggests starting with voluntary programs that are easy, for example clothes and eyeglasses to charities.

An advantage to the Take it Back! Program is that it diverts from the landfill but yet is not paid for by the City.

San Luis Obispo County Integrated Waste Management Authority, California

Contact person: Bill Worrell

E-mail: bworrell@iwma.com

Phone number: (805) 782-8530

Description

In 2000, California state law mandated that it is illegal to dispose of universal wastes in landfills. Universal wastes are generated by a wide variety of people that contain mercury, lead, cadmium, copper and other substances hazardous to human and environmental health. Households and small businesses were exempt from the state's Universal Waste Rule until February 2006.

A county-wide ordinance, effective since April 2008, established a Take-back Program for household batteries, cell phones, and fluorescent lighting in San Luis Obispo (SLO). Retailers who sell these items are required to take-back those items from the public for free disposal. In 2009, the SLO Integrated Waste Management Authority (IWMA) implemented the "SLO Take-back Program" for latex paint. These programs are made possible through the SLO IWMA and a grant from the State of California. San Luis Obispo County's retail take-back program includes the retail collection of household batteries, fluorescent tubes, fluorescent light bulbs, sharps, and latex paint, all which will ultimately be recycled or disposed.

Targeted Materials

San Luis Obispo County requires retailers to accept household batteries, fluorescent tubes, sharps, and latex paint.

Are these materials diverted through other programs (such as curbside recycling)?

There is no curbside pick-up for these items, but they can be dropped off at Household Hazardous Waste (HHW) centers managed by the County.

Does the jurisdiction collect or recycle pharmaceuticals?

In an unrelated program, there are currently 2 pharmacies that collect pharmaceuticals. The HHW program is currently looking into expanding its take-back program to include pharmaceuticals and may begin next fiscal year (July 2010). All pharmaceuticals would be dropped off at police stations. Using police stations as collection points will be convenient for the public and would allow for the collection of Class 1 drugs.

For the materials that are taken back, how are they handled? Are they sent back to the manufacturer? Sent to a recycler? Disposed? Who pays for the program?

Latex paint is recycled. Batteries may be recycled or disposed. Sharps are disposed. The retail store may drop it off at an HHW for disposal or may have a contract with a private company that disposes of the materials.

What are the names of the retailers that are participating in the program?

More than 300 local businesses take-back batteries. Approximately forty-two pharmacies collect sharps. Approximately forty-two paint stores collect latex paint. More than 100 stores collect fluorescent bulbs. A list of participating retailer can be found online at <http://www.iwma.com/index.html>.

All retailers selling cell phones, latex paint, household batteries and fluorescent tubes and bulbs in San Luis Obispo County are required to take them back. Examples of participants follow.

Household Batteries: 7-Eleven Food Store, Albertsons, Dollar Tree Stores, Lowe's Office Max, Wal-Mart, CVS Pharmacy

Fluorescent Tubes and Bulbs: Albertson's, Wal-Mart, Rite Aid, Lowe's, Staples, Target, Office Depot, Home Depot, Bed Bath & Beyond

Diversion Amount

The number of recycling locations and amounts of the materials that are being diverted through retailers on an annual basis are listed below:

- 385 battery recycling locations and 800,000 batteries per year
- 127 fluorescent tube recycling locations and 45,000 fluorescent tubes per year
- 46 sharps recycling locations and 600,000 sharps per year
- 41 latex paint recycling locations are currently being implemented

The market percentage capture of these items is not known because it is not known how much is generated.

Tip Fee/Price

The grant originally paid for the program but it expired for all but the latex paint. Now retailers pay for the materials to be recycled or disposed.

Advantages and Disadvantages

Advantages:

- Convenient for the public
- Reduces San Luis Obispo County household hazardous waste management costs
- Can be implemented by local government
- San Luis Obispo County monetary income from enforcement by civil penalties and injunctive relief

Disadvantages:

- San Luis Obispo County legal costs for enforcement by civil penalties and injunctive relief
- Additional legal case loads for District Attorneys and City Attorneys for criminal enforcement as misdemeanors

Another advantage to this program is that retailers are made responsible for the take back.

San Luis Obispo County was aware that they wouldn't be able to handle the influx of individual contributions at the County's HHW Collection centers when the state's Universal Waste Rule went into effect for households and small businesses in February 2006. The County applied for the grant funded by the California Integrated Waste Management Board to promote retail take-back collection.

The two biggest issues with the program appear to be:

- 1. Where to drop off the hazardous waste?, and*
- 2. Who pays for it?*

DRAFT

Santa Clara County, California

Contact person: Rob D’Arcy

E-mail: (408) 918-1967

Phone number: rob.darcy@deh.sccgov.org

Description

The State of California has responded to individual product threats to health and safety at end-of-life by banning them from landfills. Santa Clara County has Household Hazardous Waste (HHW) Programs for residents and small businesses as a safe disposal alternative. HHW Programs statewide have become the default collection mechanism for a growing list of problem products common to households and small businesses. Although HHW programs on average serve less than 7% of the households in any jurisdiction and collect a small fraction of the products they are intended to target, they are costly to operate and stretch local government budgets beyond their limits.

Santa Clara County is promoting “Extended Producer Responsibility (EPR)”, or Product Stewardship, which means whoever designs, produces, sells or uses a product takes responsibility for minimizing its environmental impact through all stages of the product’s life cycle. The producer, having the greatest ability to minimize impacts, has the most responsibility. Product recycling should be an extension of the marketing system, mirroring the production and distribution process in a kind of “reverse retail” process; and it should be managed through commercial arrangements. Manufacturers are best suited to reuse these materials in their processes. EPR can also drive better product design emphasizing reusability, recyclability, and recycled content. Local government waste management is inefficient and should be turned over to manufacturers.

Until EPR legislation is in place, Santa Clara County operates a HHW program and encourages voluntary participation of retailers in Take-it-Back programs. Santa Clara County operates a HHW program for paint, fluorescent lamps, batteries, and sharps. Santa Clara County HHW Program created the Retail-Take-it-Back Partner Program. This program establishes partnerships with local retailers to serve as collection points for fluorescent lamps, batteries, and sharps. The HHW program provides Retail Take-it-Back Partners with supplies to collect the wastes from the community and pays for recycling.

Targeted Materials

Only paint is recycled by the Santa Clara County HHW program.

Pharmaceuticals are collected by Santa Clara County. Pharmaceuticals collection and management are complicated by legal and practical issues. HHW staff are not trained in medical waste management; nor can they legally take possession of controlled substances. Controlled substances must be under the control of law enforcement and cannot be accepted by any other party. Additionally, pharmaceuticals come in a variety of solid and liquid forms, in containers normally labeled with sensitive personal information from the consumer. Since no sorting can be done by HHW staff, all containers and their contents are incinerated.

Fluorescent lamps, batteries, and sharps are collected in voluntary retailer programs and managed by the Santa Clara County HHW program.

Are these materials diverted through other programs, such as curbside recycling?

Some cities within Santa Clara County provide for curbside pick-up of batteries by the garbage hauler under contract with the cities. Fluorescent tubes, four feet or greater, are prohibited by state law from being collected at curbside.

Does the jurisdiction collect or recycle pharmaceuticals?

Pharmaceuticals are incinerated.

For the materials that are taken back, how are they handled? Are they sent back to the manufacturer? Sent to a recycler? Disposed? Who pays for the disposition?

The County recycles batteries and fluorescent lights at ratepayer expense.

What are the names of the retailers participating in the program?

A list of retailers can be found under the Resource Lists at sccgov.org on the Santa Clara County Department of Environmental Health's Household Hazardous Waste website (www.hhw.org, Click on Household Hazardous Waste under the Site Index, click on Resources list).

The following is an example of some of the listed retailers/collection points for particular items.

Automotive Batteries, Antifreeze and Tires: America's Tires, Firestone, Sears Tire & Automotive Center, Autozone, Goodyear Auto Service Center

Fluorescent Lamps (compact bulbs and tubes): Ace Hardware, The Home Depot, Orchard Supply Hardware

Household Batteries: Ace Hardware, Whole Foods Market, Target, Radio Shack, Best Buy, Wolfe Camera

Pharmaceuticals: South County Police Sub-Station, San Jose Sheriff's Office, Los Altos Police Department, local pharmacies

Sharps: local pharmacies, local veterinary clinics, Cupertino Fire Station

How successful has the County been in recruiting retailers for the program?

As of October 2009, 66 retailers are participating in the collection of batteries and 32 retailers are collecting fluorescent lamps, according to Rob D'Arcy's October 2009 paper, The Road to Product Stewardship: Local Government as Catalysts.

Diversion Amount

- Latex paint 250,000 lb/yr by Santa Clara County HHW program
- Pharmaceuticals 7,450 lb/yr by Santa Clara County HHW program
- Oil paint 100,000 lb/yr by Santa Clara County HHW program
- Fluorescent lamps 30,000 lb/yr by Santa Clara County HHW program

- Fluorescent lamps 80,000 lb/yr by retailers/manufacturers
- Batteries 52,000 lb/yr by Santa Clara County HHW program
- Batteries 50,000 lb/yr by retailers/manufacturers
- Sharps 2,600 lb/yr by Santa Clara County HHW program
- Sharps 4,000 lb/yr by retailers/manufacturers

Tip Fee/Price

Retailers work in cooperation with the HHW program by becoming a collection point for residents to drop off lamps and batteries. The HHW program picks up the waste and transports it to a HHW facility for final shipment to a recycler. A similar Retail-Take-it-Back Partner Program was created for sharps, except the HHW Program only provided partners with a steel receptacle in which residents directly deposit their used sharps, administrative help, and advertising opportunities for their business. Disposal of the sharps is the retailer's responsibility.

Advantages and Disadvantages

Advantages:

- Residents prefer to take their fluorescent lamps and batteries back to the place they bought them.
- Convenience is the key to consumer participation.
- The take-back program provides the highest level of convenience.

Disadvantages:

- Existing Santa Clara County HHW program collection infrastructure is inadequate to manage the current amount of hazardous products, let alone the vast amount of new Universal Waste banned from the trash.
- California residents are not aware of the landfill ban for Universal Waste in 2006 or the sharps ban of 2008.
- Santa Clara County cannot end funding for the voluntary Retail-Take-it-Back Partner Program without retailers withdrawing from the program.

Barton Springs Nursery

Address: 3601 Bee Caves Road, Austin, Texas 78746-5313

Contact person: Bernadeen Barring

Phone number: (512) 328-6655

Description

Barton Springs Nursery is a garden center that specializes in plants that are indigenous to the central Texas region. The nursery is privately owned and has been in operation since 1986. The nursery grows the majority of the plants they sell on site.

Barton Springs Nursery retails a complete line of native plants, shrubs, herbs, wildflower seeds, tools, organic fertilizers, and pest control products garden gifts, and Vietnamese pottery.



Targeted Materials

Barton Springs Nursery currently takes back the plastic pots they sell plants in as long as they are in good condition. They sterilize the pots and reuse them in their nursery.

They would be willing to take back any plastic pots if they had a place that would recycle them. They are willing to take back any item as long as the item could be recycled without additional cost. Some items that come to mind are mulch, fertilizer and soil bags, yard clippings, and unopened fertilizer containers.

When the nursery receives shipments of pottery the pottery is packed in rubber mats. They currently have no option for recycling these mats and they are thrown away. They would like to recycle the packaging from the pottery as it is rubber made from old tennis shoes.

Cardboard is recycled by being reused for packaging or they take to Ecology Action when they can. The City does not currently pick up cardboard.

They recycle Styrofoam and bubble wrap by contacting a local artist or mail Center Store.

People or businesses pick up pallets.

Feasibility

Finding places to recycle the plastic pots and packing material used for pot shipments is the current challenge for the nursery. They currently do not have any recycling service in the area willing to pick up any items and if they did they would be more willing to participate in the recycling program.

Cardboard is not feasible due to lack of storage and The City does not pick up. Storage space and hauling material is an additional concern; the nursery is willing to participate, but needs to keep the associated costs to a minimum.

Diversion Potential

If the rubber packing material received with pottery shipments was recycled it would save approximately nine large dumpsters of waste being hauled to the landfill each year. This amount is from one nursery. If other nursery's participated this would be a significant decrease in waste.

Tip Fee/Price

Indicate whether the retailer would be able to accept the materials for free, require a subsidy or payment, or be able to pay for the materials.

The nursery is not willing to charge a fee to their customers to support a take-back program. They only recycle pots and the quantity is limited. Additional costs with taking back the pots include the labor and chemicals to sterilize the pots.

Advantages and Disadvantages

Advantage

- Reduce the number of plastic pots to be purchased by the nursery

Disadvantage

- Need additional storage for take-back materials
- Not a current recycler identified for rubber

DRAFT

Batteries Plus

Address: 7915 Burnet Rd., Austin, Texas 78757

Contact person: Mr. Lee Borek, Manager

Phone number: (512) 419-7587

Description

Batteries Plus (BP) started in 1988, and has become the nation's largest and fastest growing battery retailer, selling more than 40,000 types of batteries and battery-related products to consumers, businesses, and government entities at the national and local levels. BP sells everything from common AA and 9-volt batteries to hard-to-find specialty batteries.

Targeted Materials

Batteries Plus helps to recycle spent batteries as a means to reduce waste in landfills, stop harmful chemicals from contaminating soil and water and preserving the environment by decreasing the need for new raw materials. BP recycles the majority of the batteries it sells. BP supports retail and business customers alike by keeping them in full compliance with federal, state, municipal, EPA, and DOT regulations governing the disposal and recycling of spent batteries and select electronics.

BP recycles these types of spent batteries: lead acid (Pb) batteries used in cars, trucks and emergency lighting, Nickel Cadmium (NiCd) batteries used in cordless phones, cordless tools and two way radios, Nickel Metal Hydride (NiMH) batteries used in camcorders, bar code scanners and digital cameras, Lithium Ion (Li Ion) or Lithium Polymer (Li Poly) used in cell phones and laptops.

While the BP website adds that "Additional recycling services for businesses and other chemistries are available upon request, the retailer surveyed is not willing to accept any other materials for either recycling or reuse processing due primarily to limited space to store these materials."

Feasibility

BP is very interested in continuing to serve as a depository site for household-type batteries, but is not willing to accept any other materials for either recycling or reuse because their space is very limited. The City of Austin provides the retailer up to ten 5-gallon buckets to collect recycled batteries. This retailer has had difficulty with City of Austin staff picking up the bucket-full of batteries for recycling. This staff would inspect the buckets full of batteries to extract batteries they do not accept at the City recycling facility. The retailer is of the opinion that it is providing a service to the public, and the City should take all the batteries and separate them at its own recycling facility.

On one occasion, and in the Manager's absence, a local call-center left a very large number of battery-equipped uninterrupted power supplies (UPS) whose batteries were dead. He was fortunate that he found a local small business that took them, replaced the batteries, and resold the units. He does not make this activity a routine one.

BP advises that there is one particular type of battery that he will absolutely not accept — liquid NiCad batteries — as there is no recycling service facility anywhere in the United States. The retailer

at one time accepted a number of such batteries, not knowing what they were. The retailer had to ship these batteries to Europe at a significant cost to the retailer franchise owner who made the expense as it was the “right thing to do.”

Diversion Potential

The surrounding residential area is characterized both as having a significant percentage of elderly as well as very environmentally conscious. As a result, the retailer estimates (roughly) that it recycles 800 lbs. of household-type batteries per week (41,600 lbs./yr.). He was not able, or willing, to state how much more recycling materials he would be able to accept because the Batteries Plus franchise stores are being reduced to 1,100 square feet in size. This store is not being reduced in size, though, as it has recently been remodeled.

This retailer currently accepts the batteries collected by the Whole Foods store on North Lamar Blvd. As stated above, this Batteries Plus franchisee serves as a collection point for the City of Austin’s Household Hazardous Waste Collection Facility. The City staff collects approximately ten 5-gallon buckets of batteries each week.

Tip Fee/Price

This retailer does not charge for accepting batteries to be recycled, and does not anticipate charging for this service that is seen as a community service. It is “the right thing to do.” The retailer indicates that the sale price of auto batteries includes a “core charge” of \$10 that is reimbursed upon the delivery of the battery to be recycled.

Advantages and Disadvantages

The advantages of collecting batteries for recycling is perceived by the retailer as a community service, “The right thing to do.” The retailer sees taking back additional materials from the public for reuse/recycling as a disadvantage due to lack of additional space for storage of such materials.

<http://www.batteriesplus.com/t-batteries-plus-recycles.aspx>

We Recycle

Batteries Plus strives to practice environmental stewardship in how we do business. They are committed to recycling spent batteries as a means to reduce waste in our landfills, stop harmful chemicals from contaminating our soil and water and preserving our environment by decreasing the need for new raw materials from the Earth.

BP leads by example by recycling the majority of the batteries they sell. Not only do they recycle to protect the environment, they support retail and business customers alike by keeping them in full compliance with federal, state, municipal, EPA and DOT regulations governing the disposal and recycling of spent batteries and select electronics.

BP recycles these types of spent batteries; lead acid (Pb) batteries used in cars, trucks and emergency lighting, Nickel Cadmium (NiCd) batteries used in cordless phones, cordless tools and two way

radios, Nickel Metal Hydride (NiMH) batteries used in camcorders, bar code scanners and digital cameras, Lithium Ion (Li Ion) or Lithium Polymer (Li Poly) used in cell phones and laptops.

Additional recycling services for businesses and other chemistries are available upon request. Please contact your local battery expert for more details.

Batteries Plus' recycling goal is to produce a positive impact on the environment by recovering and recycling more than they sell.

DRAFT

Bicycle Sport Shop

Address: 517 S Lamar Blvd.

Contact person: Ryan Amey, Store Manager

E-mail: ryan_a@bicyclesportshop.com

Phone number: (512) 477-3472

Description

Bicycle Sport Shop is a locally owned and operated full service bike shop with two store locations in Austin, Texas. Bicycle Sport Shop has a service department that offers tune-ups and repairs to most bicycles and also offers a fitting service, bike and equipment rental and educational clinics on bike riding and maintenance.



Bicycle Sport Shop retails bikes from 11 different bike manufactures with styles ranging from children's bikes, cursers, hybrids, full suspension mountain bikes, and road racing bikes. The shop also carries a wide range of bicycle parts, accessories, tools, cycling apparel, shoes, helmets, sport nutrition and training materials.



Targeted Materials

Bicycle Sport Shop does not currently have a take-back program in place. At one time they had a tire and tube drop-off and they used money they earned from recycling cardboard to ship the rubber out of state. At this time, they cannot find a recycling center that takes back rubber so they terminated the program. They are willing to take back batteries and they currently take them to Batteries Plus, a local battery retailer.

The shop will take back used bikes and will donate them along with in-house used bikes to the Austin Yellow Bike Project. The Austin Yellow Bike Project (YBP) 501c(3) is an all-volunteer initiative to put bicycles on the streets of Austin and Central Texas by operating community bike shops, teaching bike mechanics and maintenance, and acting as a local bike advocacy group. (www.austinyellowbike.org)



The bike shop recycles internally to cut down on the amount of waste being hauled to the land fill. Every bike that is shipped to the shop is packaged in a cardboard box. With over 11 bike manufactures this equates to a large amount of cardboard. During the interview staff indicated that cardboard is broken down on average of four times per day. The Shop takes cardboard to Ecology

Recycling Center at 9th and IH-35 at least once a week. A cost of handling this cardboard and delivering it equates to approximately \$100 per week. All glass is separated into clear and colored bins and plastics are separated into bins and taken to Ecology Recycling Center. Wooden pallets are picked up by a company for reuse. Any paint products are disposed of through the City of Austin's semiannual paint disposal program.

Bicycle Sport Shop is very motivated in recycling and would like to be involved in a take-back program; however, they would need assistance in locating a recycle center for rubber or metal parts and would also need assistance in covering the cost. They are not willing to pass this cost on to their customers.

Feasibility

The biggest factor is storage for take-back products. The shop used 50 gallon barrels for tubes and had them shipped. They would still be willing to do this if subsidized for the shipping fee. They are willing to take back used bikes and transport them to Austin Yellow Bike. They are also willing to take back used bike parts if they can find a place to recycle them. Cardboard is not an option - they do not have enough room to store what they currently generate.

Diversion Potential

Rubber and metal bike parts are the largest take-back diversion potential for the shop. The challenge is the cost of shipping the items to an interested party for recycling. Currently, cost is the limiting factor, not volume.

Tip Fee/Price

Bicycle Sport Shop was not receptive to the idea of customers paying a fee to recycle rubber or metal parts.

The cost the shop currently pays to recycle cardboard per week equates to 10 hours of labor at \$10 per hour or \$100/week. The owner would like a compactor, but this is not financially feasible and was wondering if this could be subsidized.

Advantages and Disadvantages

Disadvantages

- Space required to handle cardboard
- Cost involved in shipping rubber

Commercial Surface Installations

Address: 6807 Guadalupe St., Suite B, Austin, TX 78752

Contact person: Roland Basaldua

E-mail: commercialsurface@hotmail.com

Phone number: (512) 323-6700

Description

Commercial Surface Installations is an independently owned Austin based carpet, tile, wood and stone retailer for floor coverings. They typically sell to businesses, hotels or other commercial developments; however, they do residential installations as well.

During the interview it was understood that the retailer sells the floor covering, but an independent installer contracts with them to install the product.

Targeted Materials

The targeted materials include the plastic and wood pallets that the flooring is shipped in, and the old carpet, carpet padding, tile or wood floor covering that is being replaced.

One carpet manufacturer, Shaw, currently takes back carpet with the following restrictions. Carpet must be manufactured by Shaw and be from their Ecoworks product line. Customer must be replacing the carpet with product from Shaw.

Feasibility

The biggest challenge is finding a manufacturer or recycling center to take back targeted items. Another challenge is educating the installers of the take-back program and assisting in minimizing the cost to them for participating in the program.

One place that takes back carpet and padding requires the carpet to be cut up into 3x3 foot squares. There is only one recycling center in Austin and it is not clear what is actually recycled and they do not always take-back material depending on their current volume.

Diversion Potential

The volume of carpet, padding and other flooring material determines the amount of recyclable material that they can recycle.

Tip Fee/Price

They are not willing to charge their clients a fee for recycling or to support a take back program.

Advantages and Disadvantages

Disadvantages

- Limited storage space

- Hauling of material
- Cutting up material

Advantage

- Reduced waste or landfill fees

DRAFT

H-E-B

Address: H-E-B Environmental Affairs, San Antonio, Texas

Contact person: Maggie Hernandez

Phone number: (210) 938-6535

Description

H-E-B is a San Antonio-based grocery store chain that serves a large portion of Texas.

Targeted Materials

H-E-B currently accepts and recycles plastic shopping bags, newspaper bags, dry cleaning bags, plastic stretch film and all clean, dry bags labeled # 2 and # 4.

The number one challenge in collecting recyclables is trash. H-E-B has reduced the amount of trash collected in their recycling bins by changing the appearance of their bin. In the past, they used 30 gallon blue Rubbermaid trash can with a mobius sign and have since changed to the distinctive collection bin made from Trex with signage on the front and top of the bin.

H-E-B has collected hard plastics, cardboard and aluminum in the Houston area in large roll off containers at a few of their store parking lots. The program was discontinued due to the high volume of trash left in the parking lot. They do not have plans to collect other recyclables at this time.



Feasibility

H-E-B is currently conducting a pilot program with the City of Austin to offer paper and cardboard recycling bins at four of H-E-B stores.

<ul style="list-style-type: none"> H-E-B Store #10 70101 Highway 71 West @ Oakhill 	<ul style="list-style-type: none"> H-E-B Store #4 7025 Village Center
<ul style="list-style-type: none"> H-E-B Store #23 6900 Brodie Lane 	<ul style="list-style-type: none"> H-E-B Store #20 6001 West Parmer Lane @McNeil

H-E-B partnered with AbitibiBowater and the City of Houston to provide community recycling containers for collecting plastics, paper, and aluminum in 2007, but this initiative was discontinued due to a high volume of trash being disposed of in and around the containers.

Diversion Potential

H-E-B is able to accept all plastic shopping bags, newspaper bags, dry cleaning bags, plastic stretch film and all clean, dry bags labeled # 2 and # 4.

Tip Fee/Price

H-E-B currently accepts and recycles all the plastic film mentioned at no fee to the customer.

Advantages and Disadvantages

H-E-B Houston area stores that participated in the community recycling program experienced a high volume of trash being disposed of in and around the recycling collection bins.

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Supplemental information:

The H-E-B School Recycling Program offers schools a way to earn money for their school while recycling. The following is their program.

H-E-B School Recycling Program

Are you interested in earning money for your school and helping the environment, too? Don't throw away those plastic grocery bags! Your school can sign up to collect H-E-B plastic grocery bags and earn money for every pound you accumulate. The bags you collect are then turned into trash bags, which can be purchased at H-E-B. It's simple and helps your school and the environment as well. Now that makes good sense!

Find out more about the program and how you can participate:

Here's how the program works...

The H-E-B recycling program not only provides schools with an opportunity to earn money, but also encourages and educates children about the importance of recycling.



1. Schools who are enrolled in the recycling program receive up to \$1.00 per pound for collecting used H-E-B grocery bags. Schools must register to participate by calling Enviro-Bag® at:

Toll Free: 1-800-866-3954

Monday thru Friday

8 a.m. to 4 p.m. (Central Time)

2. Enviro-Bag® will provide the school with special recycling liners and instructions for properly packing the used plastic grocery bags.

3. For every pound of clean and properly packed used plastic grocery bags a school returns for recycling, the school will receive up to \$1.00.

4. The reprocessed recycled bags are used to produce new Enviro-Bag® trash and tall kitchen garbage bags. These bags are sold at most Texas **H-E-B** stores. Please contact your local H-E-B store to check on availability.

H-E-B School Recycling Program - The Process

1. Groceries and merchandise are purchased at H-E-B and bagged with **H-E-B** plastic bags. These bags are then saved by students and community members and are brought to the participating school.



2. Once at the school, the bags are rolled tightly and packed into shipping liners. An instruction manual is followed to ensure a tight fit. The heavier the liners, the more dollars for the school.

3. Once the schools' recycling liners are full, they're mailed to Enviro-Bag[®], where the contents are weighed, sorted and graded on cleanliness. A report card is then sent to the school, telling them how much the liners weighed and how much money they earned.



4. After that, all of the H-E-B plastic bags are reground into tiny plastic pellets with a regrind machine.



5. Pellets are then sent through an extrusion machine where they are compressed, heated and flattened to make trash bags from **H-E-B** plastic bags.

6. H-E-B Enviro-Bag[®] trash bags include all the collected **H-E-B** plastic bags. They're shipped to H-E-B stores, stocked on the shelves and made available for purchase!



The Products

Enviro-Bag[®] Drawstring Tall Kitchen Bags

20 Quantity

13 Gallon Size

Strong Bags

Enviro-Bag[®] Drawstring Trash Bags

10 Quantity

30 Gallon Size

Strong Bags

Five reasons to choose plastic bags over paper bags...

1. Plastic can be recycled.
2. Plastic uses less than 1/10th the landfill space that paper uses.
3. Plastic is more economical.
4. Plastic bags are more convenient to carry.
5. Plastic doesn't use chemicals or trees.



Hewlett-Packard Company

Address: 3000 Hanover Street, Palo Alto, CA 94304-1185 USA

Contact person: None offered via the company's website

Phone number: (650) 857-1501

Description

Hewlett-Packard Company's (HP) three business groups in core technology areas are: 1) The Personal Systems Group: business and consumer PCs, mobile computing devices, and workstations, 2) The Imaging and Printing Group: inkjet, LaserJet and commercial printing, printing supplies, and 3) Enterprise Business: business products including storage and servers, enterprise services, and software.

Feasibility

HP ensures that unwanted hardware is reused or recycled in a way that conserves resources. HP offers free recycling for consumers who ship their old equipment to HP. Custom price quotes are available for large quantities or businesses.

HP's state-of-the-art recycling facilities process each return in an environmentally responsible manner through a multi-phase recycling process. Products are sorted and shredded, then separated into plastics and metals. Print cartridges are further separated into residuals of ink, foam or toner. Materials are then processed into their raw forms so they can be used in automotive parts, microchip processing trays, serving trays, spools, hangers, and other everyday products.

Targeted Materials for Recycling

HP's recycling of unwanted computer hardware and printing supplies includes: 1) Recycle HP Inkjet and LaserJet cartridges for free, 2) recycle any brand of computer hardware, and drop-off locations for rechargeable batteries in the U.S. and Canada.

The HP Consumer Buyback and Planet Partners Recycling Program accepts products of any brand manufacturer in the following product categories:

- Desktop PCs
- Workstations
- Notebook PCs
- Tablet PCs
- Monitors, both CRT and LCD
- Printers, both ink and laser
- Scanners
- Digital cameras
- PDAs

- Smartphones
- Handheld Calculators
- Home Media Servers
- Digital Picture Frames
- External Hard Drive/DVD Drive

Media Receivers

HP has been recycling hardware since 1987, and by 2007 it had met its goal to recycle 1 billion pounds of electronics. HP is now committing to recover a cumulative 2 billion pounds of electronics and print cartridges by the end of 2010. Its Planet Partners Hardware recycling program has been internet-based for over 5 years. HP is a member/sponsor of EPA's "Plug-in to e-Cycling" Program, a partnership program between EPA and leading consumer electronics manufacturers, retailers, and mobile service providers that fosters and promotes opportunities for individuals to donate or recycle their electronics.

Diversion Potential

HP is now committing to recover a cumulative 2 billion pounds of electronics and print cartridges by the end of 2010.

Through the HP website, consumers can find battery recycling deposit locations Call2recycle.org's website (<http://www.call2recycle.org>), and entering one's zip code on the website yields an ample supply of deposit location convenient to the consumer.

New at HP is its expanding HP Planet Partners print cartridge and return and recycling program that offers customers more free and convenient return options. The program now includes HP authorized retail recycling locations for HP print cartridge collection, and Staples is the first to pilot the HP retail recycling through HP Planet Partners program. HP customers can return their used HP inkjet and LaserJet print cartridges to more than 1,500 Staples U.S. locations. HP plans to name additional authorized retail recycling partners.

In addition to the already listed products accepted for recycling, HP also accepts large format banners and similar media at no charge to the consumer.

Tip Fee/Price

HP offers free recycling for consumers who ship their old equipment to HP. Custom price quotes are available for large quantities or businesses. HP pays customers a small amount for operable electronic equipment via its recycling website.

Advantages and Disadvantages

HP emphasizes that it strives to be a social asset to every community in which it does business by controlling electronic waste. It also states that it is focused on environmental sustainability. HP is committed to reducing its environmental impact across all aspects of business – from operations to

products and services. Through HP's Consumer Buyback and Planet Partners Recycling Program, HP fulfills this promise by offering reuse and recycle options for your aging technology.

<http://www.hp.com/hpinfo/globalcitizenship/environment/recycling/unwanted-hardware.html>

HP makes it easy to recycle unwanted computer hardware and printing supplies responsibly.

- Recycle HP Inkjet and LaserJet cartridges for free
- Recycle any brand of computer hardware
- Drop off locations for rechargeable batteries in the U.S. and Canada

<http://h30248.www3.hp.com/recycle/hardware/overview.asp>

HP's state-of-the-art processes ensure that your unwanted hardware is reused or recycled in a way that conserves resources. HP offers free recycling for any consumer who ship them their old equipment. Custom price quotes are also available for large quantities or businesses

Recycling process

What happens when you return an HP print cartridge or any brand of computer hardware to use for recycling? HP's state-of-the-art recycling facilities process each return in an environmentally responsible manner through a multi-phase recycling process. Products are sorted and shredded, then separated into plastics and metals. Print cartridges are further separated into residuals of ink, foam or toner. Materials are then processed into their raw forms so they can be used in automotive parts, microchip processing trays, serving trays, spools, hangers and other everyday products.

HP Experience

- Hardware recycling since 1987
- In 2007, HP met its goal to recycle 1 billion pounds of electronics
- HP is now committing to recover a cumulative 2 billion pounds of electronics and print cartridges by the end of 2010
- Planet Partners Hardware recycling program has been internet-based for over 5 years
- Member/Sponsor of EPA's "Plug-in to e-Cycling" Program

<http://www.hp.com/hpinfo/globalcitizenship/environment/recycling/product-recycling.html>

Product Recycling

HP recycling services provides an easy way to recycle computer equipment, printing supplies, rechargeable batteries, and other items.

Global recycling services	Details	Region
HP Inkjet or LaserJet cartridges	<ul style="list-style-type: none">• It's free• Check inside cartridge boxes for return materials (available for some products and countries)• Order postage-paid return shipping materials online or find other return options	<div>United States ▾</div> <div>Go »</div>
Hardware products	<ul style="list-style-type: none">• Use the online ordering tool to request recycling services or follow the instructions provided	<div>United States ▾</div> <div>Go »</div>
HP Large Format Banner/Media	<ul style="list-style-type: none">• It's free for customers in select countries to return LF banners and flags after use	<div>United States ▾</div> <div>Go »</div>

Additional North American recycling services	Details	Region
Rechargeable batteries	<ul style="list-style-type: none"> • It's free • HP has contracted with RBRC which provides over 32,000 retail drop-off locations in the US and Canada. 	<div>United States ▼</div> Go »
Cell phones - any brand	<ul style="list-style-type: none"> • It's free for customers in California who purchased a new HP phone product. 	<div>United States ▼</div> Go »
HP/Compaq mercury lamp assemblies, user replaceable	<ul style="list-style-type: none"> • It's free for customers in Connecticut and Massachusetts 	<div>▼</div> Go »

Battery recycling deposit locations found via the website whose URL is as follows:

<http://www.call2recycle.org/drop-off-your-old-batteries.php?c=1&d=76&e=142&w=9100&r=Y>

https://h30248.www3.hp.com/recycle/supplies/index.asp?_cc=us

New - HP is expanding the HP Planet Partners print cartridge and return and recycling program to offer customers more free and convenient return options. The program now includes HP authorized retail recycling locations for HP print cartridge collection.

With the introduction of the HP authorized retail recycling locations and to reduce the amount of shipping material required for recycling returns, HP will no longer include return envelopes in HP inkjet cartridge packaging. However, HP will continue to accept in-box envelopes that customers have saved and provide customers with several other free, postage paid return options below, including return envelopes, bulk collection boxes, and printable labels. HP will continue to offer return labels in HP LaserJet cartridge packaging as well as online and in-store recycling options.

https://h30248.www3.hp.com/recycle/supplies/ink_page.asp?_cc=us&btnBegin=Begin+%BB

Get started

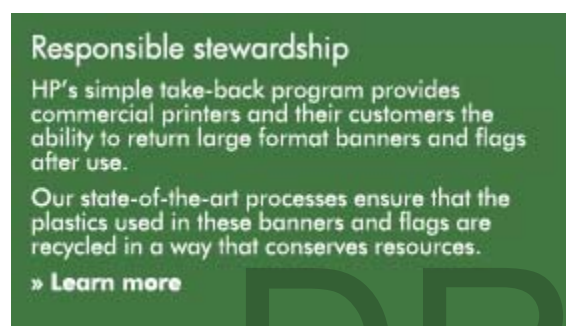
It's a simple 3-step process to print or order your free postage-paid HP inkjet shipping materials or to arrange for a pallet pickup, allowing you to send in your used inkjet supplies for recycling. Begin by selecting a shipping method below. To avoid the need for entering your address information for future supplies recycling visits, you may sign-in at right.

Please note: Some HP inkjet cartridges cannot be recycled. [View non-returnable supplies](#).

Also recyclable: Plastic end caps from HP Large Format Printing Materials can be included with inkjet cartridges returned for recycling.



http://h30248.www3.hp.com/recycle/lfbanners/?jumpid=ex_r602_go/recyclelfbmedia



It's a simple process to participate.

- Pack materials according to [packaging instructions](#)
- Provide contact and package information
- Print shipping label
- Affix label to package and give to carrier

Eligibility:

This free recycling service is open to customers in the United States.

If you are not eligible for this free service, HP offers other electronic hardware recycling programs that may meet your needs. For more information visit [HP's hardware recycling services](#) site.

<http://www.hp.com/united-states/hho/buyback-recycle/index.html>

HP Eco Solutions

Consumer Buyback and Planet Partners Recycling Program

Another Way HP is Helping You Go Green!

HP is committed to reducing its environmental impact across all aspects of business – from operations to products and services. Through HP's partnership with Market Velocity, Inc. (MVI) the HP Consumer Buyback and Planet Partners Recycling Program fulfills this promise by offering reuse and recycle options for your aging technology.

The HP Consumer Buyback and Planet Partners Recycling Program accepts products of any brand manufacturer in the following product categories:

- Desktop PCs
- Workstations
- Notebook PCs
- Tablet PCs
- Monitors, both CRT and LCD
- Printers, both ink and laser
- Scanners
- Digital cameras
- PDAs
- Smartphones
- Handheld Calculators
- Home Media Servers
- Digital Picture Frames
- External Hard Drive/DVD Drive
- Media Receivers

Check out the [Buyback Option](#) to see how much cash back you can receive for your old product:

Tell us about your product

- Obtain an instant Buyback quote
- Pack up and ship your product
- Receive your Buyback check!
- Top of Form

If your product does not have any buyback value, you may still recycle it with HP. Recycling is free for HP and Compaq branded products and there is a modest fee for other brands.

Process Overview**Get a quote**

Enter information about your product to obtain an instant Buyback quote. Upon completing the online quote process, you will receive an email confirmation which contains your Quote Number. You will need this Quote Number for future communications with MVI about the status of your transaction. If your product has no Buyback value, you are given the option to Recycle.

Shipping instructions

Shipping instructions for your product will be sent via email within one business day after the online quote process has been completed. It is important to use the shipping label(s) provided as it used to expedite tracking, identification, and processing. You will have 30 days from the receipt of your shipping label to ship your Buyback product(s) or your transaction will be null and void and you will need to begin the quote process again.

Buyback check or Recycling confirmation

For the Buyback Option, completion of your claim includes the receipt and inspection of your product. Please allow 45 days from the time your Buyback claim is complete for receipt of your cash back check. If you have not received your cash back check after this time, please contact customer service Monday - Friday, 8:00 AM to 8:00 PM Eastern Standard Time at 1-888-285-2009 or [e-mail customer service](#).

For the Recycling Option, once your product has been received, you will be sent an email confirmation and this will complete your transaction. If you have questions about HP recycling practices then please visit our web site at www.hp.com/recycle.

After Registering for the Recycling Program....

Your card will be charged \$10.00. The only use of your credit card will be to charge recycling and shipping and handling fees associated with the recycling of your product.

Live Oak Pharmacy

Address: 1611 W. 5th Street

Contact person: Scot Maitland, Owner & Director of Communications

E-mail: smaitland@liveoakrx.com

Phone number: (512) 476-8979

Description

Live Oak Pharmacy is a privately owned pharmacy located in downtown Austin. It is a hybrid (compounding) pharmacy which promotes pharmaceutical and homeopathic health care and wellness. Live Oak Pharmacy retails manufactured and custom prescriptions, over the counter medication, first aid items, and homeopathic medicine.

Compounding Pharmacy - A compounding pharmacy is authorized to create prescriptions in-house as opposed to only selling pre-packaged manufactured pills. Compounded medications are prescribed for a variety of reasons including:

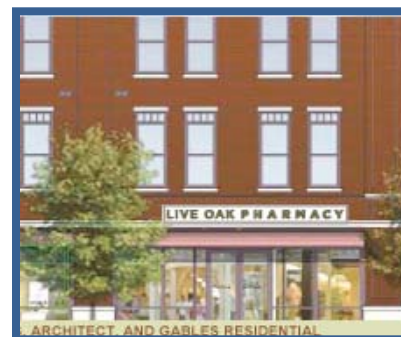
- Formulating difficult-to-swallow pills into tasty liquids
- Combining multiple medications into a single compound or dose
- Preparing medication compounds that are not commercially available
- Formulating medication compounds in an allergen-free formula
- Formulating medication compounds for pets

Consulting Services – Live Oak Pharmacy offers consulting services with patient care pharmacists or other specialized staff to meet patient needs. The pharmacy promotes the philosophy of adding a pharmacist to an individual's health care team to help navigate and integrate medications, vitamins, and alternative therapies. Consultations run between 20 to 60 minutes, during which a patient care pharmacist or other specialized staff member answers questions, explains subject matter, and reviews testing and treatment options based on the patients personal body chemistry. Pharmacy staff will then work with the patient and their health care provider to tailor a personalized program to meet their specific needs.

Targeted Materials

Targeted materials include expired or unused medicines. By law, they are not allowed to take back drugs that are classified as a controlled substance (Class C2-5) unless law enforcement is present. They also take back needles from syringes. They take back medicine bottles and other plastics after removing labels as long as they are recyclable under the City of Austin's recycling program.

The pharmacy recycles all of their in-house paper, aluminum, glass, and plastics through the City of Austin's recycling program. They do not use plastic bags and give reusable bags to all new



customers. To encourage customers to bring reusable bags in, they donate \$ 0.10 to United Angels and Third World for vitamins and supplements for children.

Live Oak Pharmacy is open to recycling other materials.

Feasibility

Live Oak Pharmacy is the first pharmacy in Austin to offer a Medication Take-Back program. They have an informative website that explains the importance of eliminating pollution as shown in the quote below:

“Disposal of your medications and supplements in the trash or down the drain pollutes our waterways and contaminates our landfills. At Live Oak Pharmacy, we know that our environment contributes to our overall health and wellness. To protect you and your loved ones, we have come up with a healthier option that helps keep the environment safe.”

A form is required to be filled out by any person dropping off medications. They have a link to the form on their website with instructions. This helps expedite the take-back process.

The medications are disposed of by mail. Live Oak Pharmacy pre-purchases shipping envelopes, boxes, and containers from Sharps Compliance Inc. (www.sharpsinc.com). The cost to the pharmacy of the shipping material from Sharps Compliance covers all costs associated with the take-back of medications and needles. Pharmaceutical companies are currently partnering with Sharps Compliance Inc. to make the take-back programs across the nation more feasible. Live Oak Pharmacy currently sends one package a week to Sharps Compliance Inc.



Diversion Potential

Live Oak Pharmacy has collected 20 pounds of medication from Earth Day (April 22, 2010) to the date of this interview (May 11, 2010). At this time, there is not a limit to the amount of medication they can take back. If volume of medication brought back to the pharmacy increased they would simply increase the number of packages and/or frequency they ship to Sharps Compliance Inc.

If the current rate continued, the pharmacy would take back approximately 250 lbs. of medications per year. This is unlikely as residents' 'clean house', the supply would be significantly reduced over time.

In the case of a drug recall the take-back volume could significantly increase. During the interview, the pharmacy staff mentioned that this would have a greater potential of happening if the public was better informed about the take-back program.

Tip Fee/Price

Currently, Live Oak Pharmacy pays Sharp Compliance Inc. for shipping envelopes and containers. They take back syringes generated from home for free if the resident uses a pre-purchased container

from Sharps Compliance, which is available for purchase at the pharmacy. If the container is from another company, the pharmacy charges a \$5.00 shipping fee to the resident to cover shipping costs.

Live Oak Pharmacy currently pays Sharp Compliance Inc. for envelopes and containers used for the take-back program. During the interview, staff indicated that if the program became larger they would need compensation for shipping materials.

A rough estimate of shipping costs and staff time equated to a fee of \$12 per pound of take-back medication. If at all feasible, the pharmacy would like to be subsidized, but is not willing to pass this cost on to their customers at this time.

Advantages and Disadvantages

Advantages

- Campaign to get medications out of house so they are not abused or misused
- Possibility of generating walk-in business

Disadvantages

- Liquid medications are limited to 4 ounces in size due to shipping regulations
- Takes time to fill out paperwork

Comments

- Pharmacy would like City assistance with public outreach
- Pharmacy staff called 311 to get information about medicine take-back program. The 311 call center was not knowledgeable of the program.

Specs Wine, Spirits & Fine Food

Address: 5 locations in Austin

Contact person: Randy Hartley

Phone number: (713) 526-8787

Description

Spec's is a Texas based liquor store and has been owned and operated by the same Houston family since 1962. With over 50 stores located all over Houston, 5 in Austin, and other facilities in Beaumont, Temple, Victoria, Corpus Christi and San Antonio. Spec's offers a large selection of wine, spirits, beers, liqueurs, cigars and, in the larger stores, fine gourmet foods.

The Warehouse Store in downtown Houston is the largest store with over 40,000 labels of wines, spirits, liqueurs, beers, and finer foods, within 80,000 square



feet of selling space. Their walk-in cigar humidor offers over 900 cigars - more than many tobacconist stores. The deli offers the finest in deli meats, pates, domestic and imported cheeses, fresh caviar, and a complete assortment of domestic and imported smoked fish and salmon, made to order sandwiches, salad bar and party trays. They also have full line of jams and jellies, pastas and sauces, oils and vinegars, crackers and cookies. They also sell a huge selection of Riedel glassware and decanters, wine refrigerators, and gift bags.

Targeted Materials

The retailer is open to taking materials back if the City provides a way to recycle and transport items. The stores currently take back wine bottle corks which benefits cancer charities.

They recycle cardboard and plastic shipping materials which are picked up 3 times per week.

Feasibility

Space to store cardboard is the biggest challenge; they are currently trying to get a baler for cardboard.

Diversion Potential

Cardboard is the biggest diversion potential.

Tip Fee/Price

They are not willing to charge their clients a fee for recycling or to support a take-back program.

Advantages and Disadvantages

Disadvantage:

- Limited space

Advantage:

- Reduce waste fees if cardboard was recycled

DRAFT

The Light Bulb Shop

Address: 6318 Burnet Rd.

Contact person: Mr. Ronnie Stewart

Phone number: (512) 453-2852

Description

Locally owned retailer of a very wide variety of residential and commercial light bulbs.

Targeted Materials

Within the last six months, the City of Austin's Austin Energy requested the retailer to accept burned-out fluorescent light bulbs, and provided the retailer with buckets in which to temporarily store them. Austin Energy staff collected these buckets once, but has not provided the retailer replacement buckets to continue recycling such light bulbs.

While the retailer indicated they would accept light bulbs from customers, they admitted they would simply throw them away in their dumpster.

Feasibility

The retailer indicated that since there is no commercial light bulb recycler, it is not feasible for them to accept light bulbs for recycling purposes.

Diversion Potential

Tip Fee/Price

The retailer accepts the materials for free.

Advantages and Disadvantages

The only advantage cited by the retailer is "goodwill" to customers, but the disadvantage identified by the retailer of taking back materials from the public for reuse/recycling is that since there is no commercial light bulb recycler, they have to discard of the light bulbs in their waste dumpster.

Westbank Dry Cleaning

Address: 1300 E 38 ½ Street, Austin

Contact person: Diana Van Brundt, General Manager

William Charnes, President & CEO

E-mail: wbclean@texas.net

Phone number: 512-236-8602

Description.

Westbank Dry Cleaners is a privately owned full-service dry cleaners located in Austin, Texas. Their facilities include one plant and eight store locations in central and west Austin. Their services include household items including garment dry cleaning and laundering, household item cleaning including bed linens and comforters, wedding and formal gown preservation, suede and leather cleaning and alterations.

Westbank Dry Cleaners is an environmentally conscious operation and is a certified environmental drycleaner through the Dry-cleaning and Laundry International (www.ifi.org). This certification program is designed to benefit drycleaners, their customers, and their communities. The program focuses on drycleaners awareness of dry-cleaning laws and regulations.



Targeted Materials

Currently, Westbank Dry Cleaners accepts plastic bags and clothes hangers. Hangers that match their hanger specifications are reused on the site. For other hangers, the plastic and cardboard is recycled through Cycled Plastics Company (www.cycledplastics.com).



Employee generated waste is not currently recycled, however the retailer would be willing to do this through the City of Austin's recycling program if offered pick up services.

Westbank Dry Cleaning is deeply committed to doing their part for a clean environment. Westbank Dry Cleaning is one of only three Certified Environmental Dry Cleaners in Austin.

They use a safe, odorless, biodegradable hydrocarbon solvent. These same types of hydrocarbons are used in waterless hand sanitizer and some cosmetics. Hydrocarbon is mild on clothing and has proven to be an effective alternative for people with chemical sensitivity.

They also use a "closed loop" cleaning system that keeps 100% of all solvents and gases from escaping into the atmosphere and they use an advanced filtration process to recycle solvent.

Feasibility

The take-back of hangers and plastic bags is very feasible. There is an issue of having sufficient storage for the hangers, plastics, and cardboard; however, Cycle Plastics picks up from their plant once a week for no charge. Chemical suppliers also trade out empty bottles for new ones.

They are willing to take back, but they do not want to inconvenience their clients and do not feel that this is the number one concern of their clients.

Diversion Potential

They generate approximately 400 cubic feet of recyclables per week. This is acceptable with the current service that Cycled Plastics provides of picking up two times per week. This equates to 19,000 cubic feet of recyclables per year.

There is additional diversion potential for office employee generated waste if the City of Austin would provide pick up services.

Tip Fee/Price

They currently accept all items for free and are not charged a fee from Cycled Plastics. They are not willing to charge their clients a fee.

Advantages and Disadvantages

Advantages

- Plastic is biodegradable from Epsilon Plastic Co.
- They reuse 2/3 of hangers that are returned
- Heat sealed bar code on tags that stay on garment
- Automated bagger measures to garment so there is less plastic used
- They use biodegradable solvent

Disadvantages

- Volume of storage for recyclables

Retailer Comments

Customers are unaware of how “green” the company is.

Whole Foods

Address: 525 N Lamar Blvd, Austin, TX 78703

Contact person: Ms. Cory McNease

E-mail: cory.mcnease@wholefoods.com

Phone number: (512) 476-1206

Description

Whole Foods (WF) is the nation's largest natural and organic food supermarket grocery store chain.

Targeted Materials

At present, Whole Foods is accepting (primarily materials bought at the store) — glass, paper, plastic, aluminum cans, film plastic (packaging), styrofoam #6, cork and composting. Most of the recycled materials are those bought by customers in the store, but materials are accepted for recycling if left outside the store next to the recycling bins at the door. WF does not advertise itself as a “take back” location due to lack of space in their North Lamar Blvd. facility. Whole Foods discontinued providing plastic bags at its checkouts, sells re-usable shopping bags, and gives money back at the register every time a customer re-uses a bag.

The company is willing to accept the following if there were a large-scale commercial recycler — Light bulbs of all types. Currently, the staff person in charge of replacing of light bulbs disposes of the light bulbs through a local business, but WF is not willing to divulge that recipient for fear of jeopardizing the arrangement.

Feasibility

Batteries — Not accepted at present, but will soon.

Light Bulbs — It is not financially viable, but the company's core value of “Caring about our communities & our environment,” makes it want to take on recycling of light bulbs.

Electric Components drive — The store has held infrequent drives of small electrical components only for staff, as this is also not financially feasible.

Advantages and Disadvantages

One of the grocery store company's core values is “Caring about our communities & our environment,” and the website states that its “Wise Environmental Practices” means that “We respect our environment and recycle, reuse, and reduce our waste wherever and whenever we can.” By accepting materials for recycling/reuse, the company is adhering to its environmental core value.

Additional Information

The store located at the Gateway Shopping Center in northwest Austin has transitioned to a single-stream recycling collection process. The North Lamar Blvd. store will soon transition to the single-

stream approach from its current process of accepting recyclables in separate bins marked for the distinct materials.

Contractors for Recycled Materials

Materials	Recycler
<ul style="list-style-type: none"> Glass, paper, plastic, aluminum cans 	<ul style="list-style-type: none"> City of Austin and Ecology Action
<ul style="list-style-type: none"> Household batteries 	<ul style="list-style-type: none"> Batteries Plus — City of Austin staff periodically pick up batteries from retail outlets.
<ul style="list-style-type: none"> Glass, paper, plastic, aluminum cans, film plastic (packaging), styrofoam #6. 	<ul style="list-style-type: none"> TRI Recycling Inc.
<ul style="list-style-type: none"> Composting 	<ul style="list-style-type: none"> Texas Disposal Systems
<ul style="list-style-type: none"> Contractor for cooking grease and oil. 	<ul style="list-style-type: none"> Liquid Environment Solutions
<ul style="list-style-type: none"> Corks 	<ul style="list-style-type: none"> Terra Cycle
<ul style="list-style-type: none"> Film plastic (packaging) and #5 plastics (salad and yogurt containers). 	<ul style="list-style-type: none"> Cycled Plastics
<ul style="list-style-type: none"> Light Bulbs 	<ul style="list-style-type: none"> WF recycles its own used light bulbs through a local contractor, but the store cannot extend this service to the general public due to the local contractor's limited recycling scale of its recycling operations.
<ul style="list-style-type: none"> Cardboard 	<ul style="list-style-type: none"> Whole Foods recycles its own cardboard through its own Whole Foods distribution center who sells it to a contractor.
<ul style="list-style-type: none"> Cell phones 	<ul style="list-style-type: none"> Enviro-Inks
<ul style="list-style-type: none"> Printer Ink Cartridges 	<ul style="list-style-type: none"> Enviro-Inks
<ul style="list-style-type: none"> Christmas Trees 	<ul style="list-style-type: none"> At one point WF accepted Christmas Trees, but it was not economically feasible to continue it due to the required logistics. The City of Austin has a very well publicized and successful recycling program site at Zilker Gardens at the end of the Christmas season.

WF's combined recyclables, including cardboard, aluminum, tin cans, and comingled glass totaled 7,333,372 pounds for a recent year for the local WF region of Texas and Louisiana that has 15 stores. This computes to an average of 41,000 pounds per month at each store.

WF leases both the North Lamar and Gateway facilities. WF must gain the approval of the property owner/manager before it can begin a recycling service at its stores as such activities require space typically at the ground level, either within the store footprint or on the surface lots. If the recycling facility is entirely within the store, the property owner/manager does not oppose recycling operations.

Appendix D - Mechanisms for Regional Cooperation

- Informal Regional Coalition as a Mechanism for Regional Cooperation
- Formation of a New Non-Profit Agency as a Mechanism for Regional Cooperation
- Federal and State Grants used as Mechanisms for Regional Cooperation

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Informal Regional Coalition as a Mechanism for Regional Cooperation

GLOW Region Solid Waste Management Committee

Website: <http://www.globalsolidwaste.org/>

Phone: (585) 344-2580 ext. 5463

Address: County Building 2, 3837 West Main Street Road
Batavia, New York

The GLOW region solid waste committee was formed through and named after a cooperation of four Counties in western New York State (Genesee, Livingston, Orleans and Wyoming Counties). GLOW actively runs a variety of programs and awareness initiatives such as Mat-Ex. This program is a reuse materials program providing a means of disposing of surplus materials for local businesses, Government agencies, and institutions. Mat-Ex allows parties to dispose of materials that would otherwise go to the landfill, while providing a means of obtaining free or inexpensive materials donated by other parties. The regulations are that no hazardous materials are to be included and there is to be no commercial gain by any party.

GLOW's compost initiative program promotes awareness of landfill's estimated 17% food and yard waste. Located at state and county parks, GLOW actively maintains three Backyard Composting Education Demonstration sites with the aid of the county and state park managements. At each site are signs displaying how-to compost information next to the 10-11 homemade composters, and a "take one" compost kit including plans and more information.

GLOW participates in many of the Earth-day programs and fairs, and is a presence in recycle rallies along with the other recycling organizations of the state. GLOW's staff also provides community and school presentations administering 38 presentations in 2009. These presentations are given with examples and learning tools such as a compost cross-section and various items made from recycled material.

Authority or Process

GLOW is an inter-county cooperation agreement that is renewed every two years

GLOW is predominantly funded by the participating counties (amount based upon county population) along with state and federal grants.

Committee is made up of four representatives from each county for a total of 16, and the committee meets six times this year.

The Agreement allows for GLOW to create its own subcommittees. GLOW currently maintains a Planning Committee to efficiently coordinate GLOW's administrative duties and an Advisory Committee.

The Advisory Committee Members are consisted of local officials, private citizens, and GLOW members.

Staff includes a full-time administrator, with clerical duties that are handled by staff from one of the participating counties. Services are provided on an hourly basis and invoiced quarterly; in which time, they are billed back to GLOW.

No approval by state or federal governments is required to form an Interlocal Agreement between any local governments or public agencies in Texas.

Steps:

- An agreement between the respective boards of participating agencies
- Formation of a Committee between participating counties
- Formation of a Planning subcommittee for the direction of funds

Advantages and Disadvantages

GLOW is very much of a grass roots organization. Because of funding reductions they have been forced to do more with less. To survive, GLOW staff have had to adjust to changes that have been made in terms of personnel reductions and changes in office space, and procedures.

Their two main programs are the Materials Exchange and yearly household hazardous waste collection. GLOW staff track how these programs can be improved over time. Aside from these programs, education is key. GLOW staff have obtained numerous recycled content products and developed the idea of the Recycling Tree to emphasize why recycling is important.

On a larger level, GLOW at the start did something that many other counties and multi-county agencies (Planning Units) did not do. They did not follow New York State's push to have regions site landfills or incinerators. They depend primarily on the private sector (other than some town transfer stations) and this turned out to work in their favor.



Formation of a New Non-Profit Agency as a Mechanism for Regional Cooperation

Brazos Valley Solid Waste Management Agency

Website: <http://www.cstx.gov/index.aspx?page=306>

Phone: (979)-764-3806

Address: PO Box 9960 College Station, TX 77842

Brazos Valley Solid Waste Management Agency (BVSWMA) is a non-profit agency created by the cities of Bryan and College Station Texas that operates the rock prairie road landfill and initiates regional cooperation by programs such as the BVSWMA “News from the Pile” newsletter printed quarterly of roughly 250 printings containing news of recycling events and schedules, advertisement for the BVSWMA Master Composting Training Program, and a class graduation list of those who have completed the program.

BVSWMA also maintains a children’s “FUN4KIDS” link on their site containing games and educational information. BVSWMA also offers schools and community groups to book a presentation by Randie the Recycling Raccoon, a puppet presentation with viewing aids designed to teach kids about composting and the 5 R’s: Reduce, Reuse, Recycle, Re-buy, and Rot.

Twice a year, the BVSWMA Master Composting Training Program trains active and dedicated individuals during a two day training course. For a \$15.00 registration charge, Participants gain composting experience of current tools and methods through educational videos and books, hands-on experience on on-site field trips, and lectures by guest speakers. After the course, participants volunteer 20 hours of instructing friends and neighbors in their community. Following completion of the two day class and 20 volunteer hours, participants are given their official Master Composter Certification.

Authority or Process

The BVSWMA board of directors is made up of seven representatives, three representatives from each of the two cities who then vote on and elect the seventh.

BVSWMA is staffed by 30 employees, 28 of which work at the landfill and two who instruct the composting program and compose the BVSWMA newsletter.

Non-profit agencies such as BVSWMA are typically created by a mutual agreement among the boards of the participating groups.

Federal and State Grants used as Mechanisms for Regional Cooperation

North Central Texas Council of Governments Solid Waste Program

Website: <http://www.nctcog.org/envir/SEELT/Background.asp>

Phone: (817) 640-3300

Address: 616 Six Flags Drive P.O. Box 5888 Arlington, TX 76005-5888

The North Central Texas Council of Governments (NCTCOG) is a voluntary alliance of local governments in the Dallas-Fort Worth region and currently is joined by 230 regional governments including 16 counties, school districts, special districts, and numerous municipalities. NCTCOG's solid waste management program includes many of the programs that CAPCOG does in the Austin area, including recycling drop-off locations and education outreach. NCTCOG also piloted a yard waste collection project in the City of McKinney with the consideration that a full-time yard waste diversion program might occur.

NCTOG promotes awareness of the problem of illegal dumping in the region. Many of the counties and cities have participated including actions such as bi-lingual brochures, newspaper ads, broadcasts on bi-lingual stations, and "No Dumping" signs placed around common dump-prone sites.

NCTCOG offers a unique program of loaning surveillance systems to local governments for use in stopping illegal dumping. Surveillance systems are offered for 4-6 month terms, adjusted for the needs of the particular local government.

A list of the programs CAPCOG currently operates:

- An online application that allows concerned citizens to report illegal dumping
- Waste facilities where citizens may choose to drop off their recycling, household hazardous waste, or any other household waste. Locations distributed across the central Texas region with several locations where citizens may sell certain recyclable material.
- Creation of the CAPCOG Solid Waste Management Advisory Committee (SWAC) to promote, coordinate, advance, and direct implementation of CAPCOG's plans and programs.
- Grant funding to solid waste management and solid waste management education programs submitted by local government applicants.

A list of the programs CAPCOG could adopt from NCTCOG:

- Yard waste collection projects including free drop-off sites
- Media advertisements on bi-lingual broadcasting stations, bi-lingual brochures, newspaper ads to promote public awareness and illegal-dump deterring signs in dump-prone areas.
- Loaning of surveillance systems to local governments for the purpose of illegal dump prevention.

Authority or Process

Funding for CAPCOG's waste management program is received from the Texas Commission on Environmental Quality grants to the Texas Association of Regional Councils.

Funds are then directed by CAPCOG's SWAC committee.

Additional funding could be obtained through federal grants from the U.S. Environmental Protection Agency or the U.S Department of Energy. Both agencies have programs that provide funding to communities for waste prevention and recycling projects.

Reference Websites:

http://www.nctcog.org/envir/SEELT/funding/TTR_Spotlight.asp#Use_outreach

http://www.nctcog.org/envir/SEELT/funding/GO_Spotlight.asp

http://www.nctcog.org/envir/SEELT/funding/SIP_Spotlight.asp

http://www.nctcog.org/envir/SEELT/sid/general_SID_info.asp

http://www.nctcog.org/envir/SEELT/sid/general_SID_info.asp

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